GY DEPARTMENT

Construction Methods

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DETROIT

MARCH 1948

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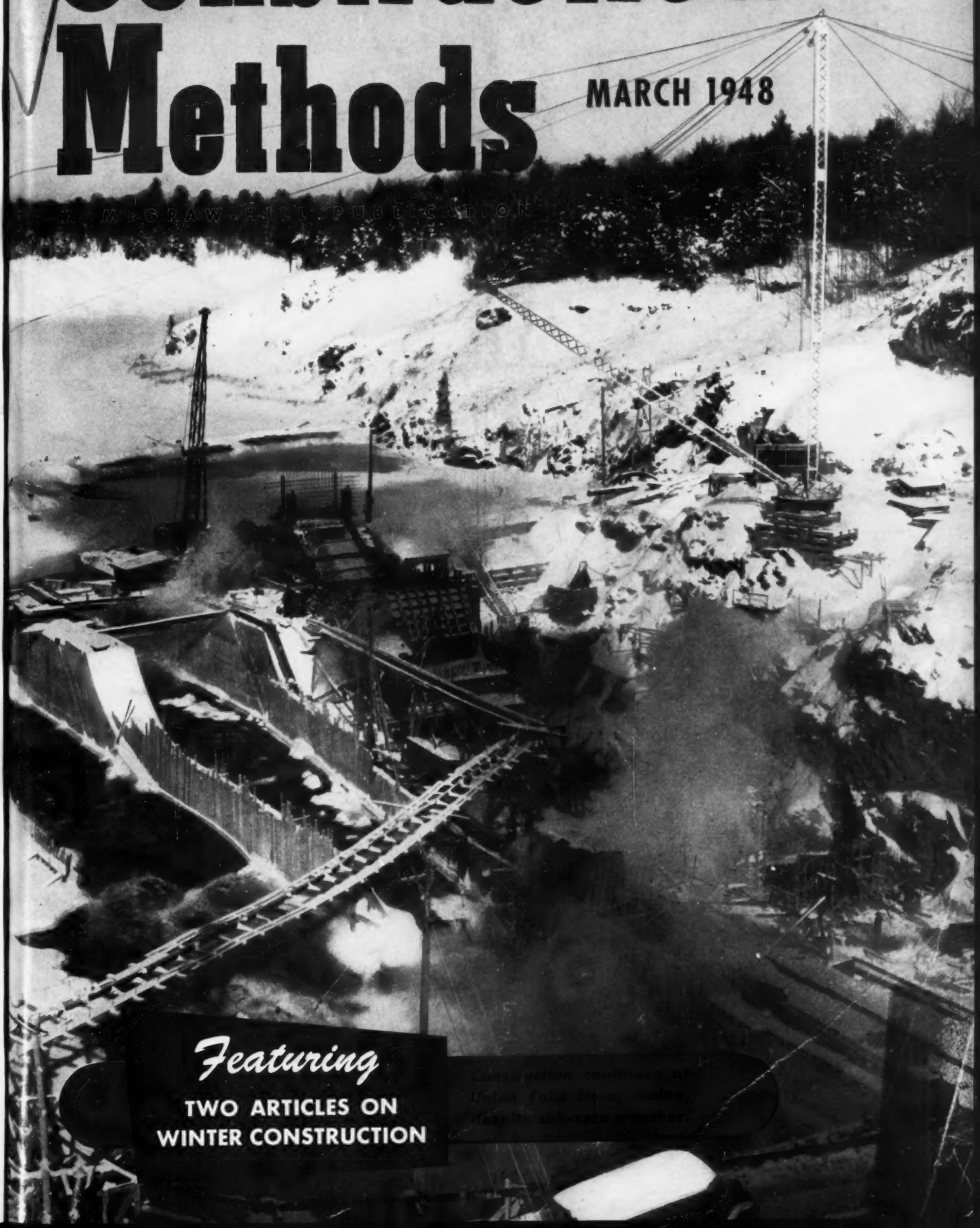
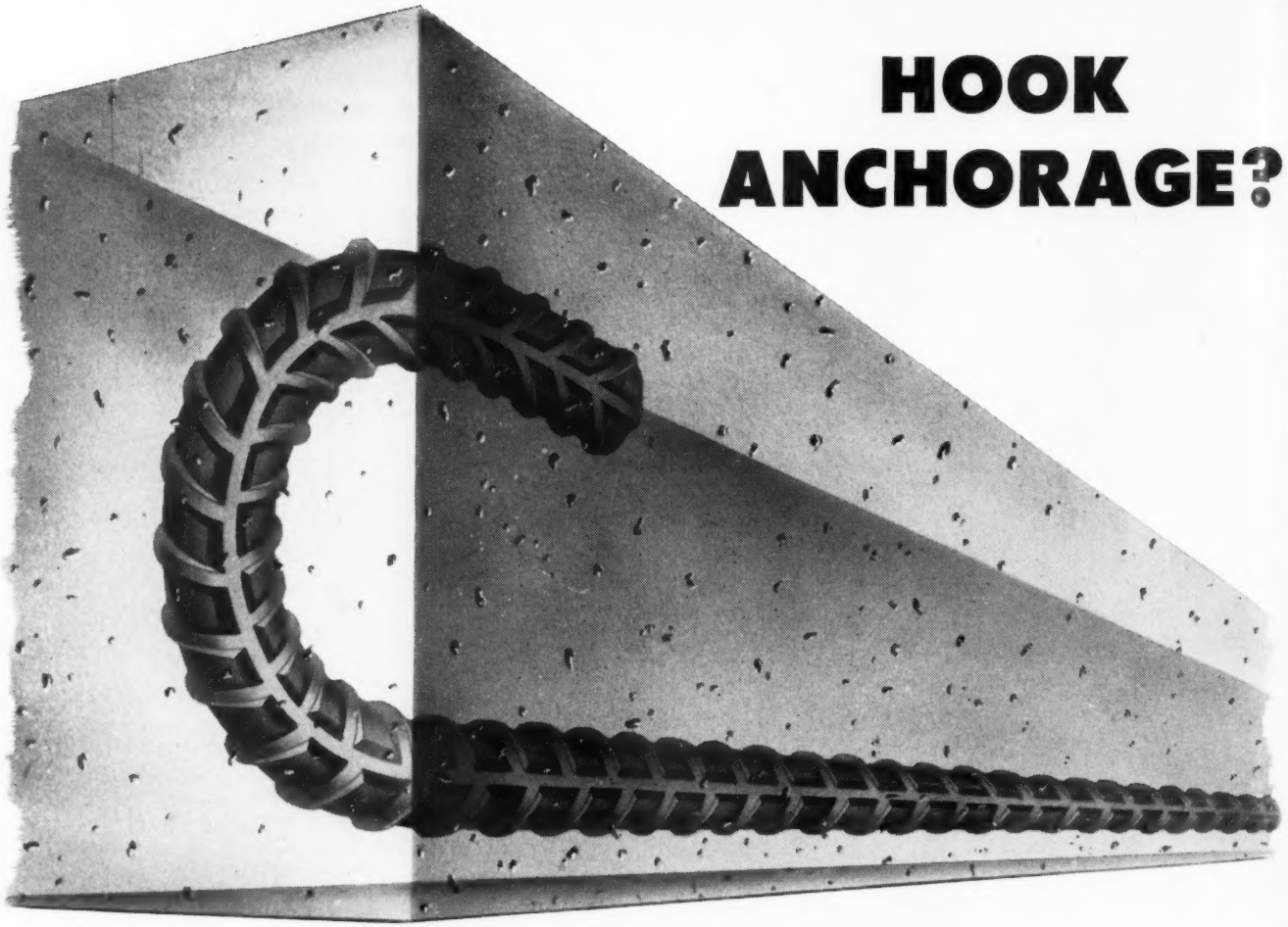


Featuring

TWO ARTICLES ON
WINTER CONSTRUCTION



HOOK ANCHORAGE?

Building Codes Say "YES!"

Engineering Tests Say "NO!"

Current building codes specify that hooks must be used to anchor reinforcing bars. But these codes were written *before* engineering tests proved that high-bond strength made end hooks unnecessary . . . *before* Inland developed HI-BOND, whose deep, reversed, double-helical ribs give greater mechanical grip, higher bonding strength. Tests prove that HI-BOND actually provides stronger anchorage *without* end hooks than plain bars provide *with* them.

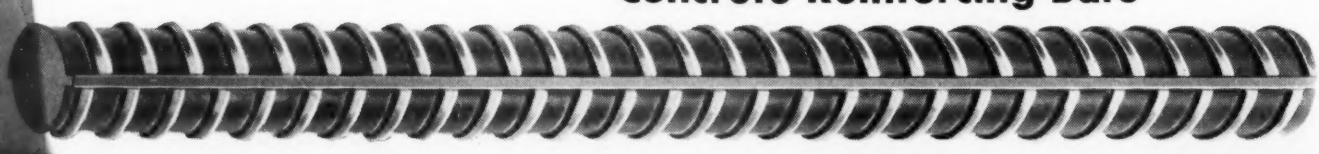
Because HI-BOND anchors firmly, it makes possible greater use of the steel's potential strength, as well as the higher compressive strength of present-day concrete. With HI-BOND, it is possible to build more economical and more efficient structures using less steel and less concrete. Revisions in our building codes will undoubtedly follow.

Since the demand for HI-BOND greatly exceeds supply, we have licensed other companies to make this superior bar. Write for booklet. INLAND STEEL CO., 38 S. Dearborn St., Chicago, Illinois. Sales Offices: Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

INLAND STEEL

INLAND HI-BOND

Concrete Reinforcing Bars



A. E. PAXTON, *Publisher*

Construction Methods

WALDO G. BOWMAN, *Editor*

THE CONSTRUCTION MAGAZINE WITH PICTURE POWER

Established 1919

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Volume 30 **MARCH 1948** Number 3

CUTS AND FILLS

CONGRATULATIONS to the Associated General Contractors of America, the specialty contractors, and the Building Trades Dept., A.F. of L., for working out a joint contractor-labor agreement for settlement of jurisdictional disputes. Disputes not settled locally will be referred to a natonal board, made up of equal labor and contractor members, with an impartial chairman, for final decision. Let's hope this ends those exasperating, wasteful disputes between trades that have cost both labor and construction so much in the past.

THE JURISDICTIONAL PLAN had better work, warned Robert L. Denham, NLRB general counsel, in a speech before the A.G.C. convention at Dallas last month, or NLRB will handle such disputes as directed by the Taft-Hartley Act. "You won't like it, if we take over," he cautioned both contractors and labor, "for we know nothing about construction and our decisions probably won't be to your advantage. But if you don't do this job we will, as directed by the Act." Straight talk from a straight-talking man, who impressed the audience with his fairness and integrity.

ANY DOUBTS that construction comes under the Taft-Hartley Act were dispelled by Mr. Denham at the same convention. "The wording of the Act leaves no alternate but to include construction," he said, pleading for cooperation from both labor and contractors. Biggest job will be determination of bargaining agencies, which must be established, according to law, by elections. He outlined proposed election steps, requiring contractors to furnish employee lists for the last year on an area basis, from which NLRB will select workers eligible to vote on union representation.

IF YOU HAVEN'T made your hotel reservation for the A.R.B.A. Road Show in Chicago July 16-24, better do it right now. Address your request to A.R.B.A. Housing Bureau, c/o Chicago Convention Bureau, 33 No. LaSalle St., Chicago, Ill.

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EVER SEE a concrete cofferdam? We did, recently, at Bull Shoals Dam on White River in Arkansas, where Ozark Dam Constructors have built a gravity section dam surrounding most of first-stage operations on the big job. Concrete stop-logs on concrete piers will close the river for the second stage work. We'll tell you all about it in next month's issue.

OTHER INTERESTING innovations at Bull Shoals will be a 35,000-ft. belt conveyor for moving quarry-run rock to the aggregate plant at the dam, and cooling of aggregates by dunking them in cold water instead of using ice. Who says there's nothing new in construction?

IF CONTRACTORS insist on day labor restrictions on the Bureau of Reclamation, they must assume the obligation and responsibility of bidding on Bureau work, is the sensible stand taken by Chief Engineer Walker Young in appearing before the A.G.C. at Dallas.

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JAMES H. McGRAW, *Founder and Honorary Chairman*

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WHY

BECAUSE... it has a hydraulic torque converter... a simple unit which automatically balances the power of the engine against its load. Enables the tractor to put in motion any load that can be moved — (available torque for starting a load is 3½ to 4 times that required for normal travel speed with load). Tractor automatically picks up speed as load is moved — not limited to gear at which load can be started.

BECAUSE... torque converter keeps tractor working at higher average speeds — takes away most of the gear shifting — automatically and constantly keeps tractor at a speed which utilizes full engine horsepower, regardless of load.

BECAUSE... operation is continuously smooth. Master clutch engages under no load — no jerking, no sudden shock to tractor or operator. Full pulling or pushing power is achieved instantly with velvet-like smoothness. This means fewer repairs . . . longer life of tractor and auxiliary equipment.

Result is more work done — day in and day out — more dirt on the fill at lower cost per yard.

THE HD-19 OUTPULLS, OUTPERFORMS ANY TRACTOR EVER BUILT!

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HD-19 DOES MORE WORK
more easily, at less cost!

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ALLIS-CHALMERS HD-19, A 40,000 POUND TRACTOR with HYDRAULIC TORQUE CONVERTER DRIVE giving an infinite number of speeds in only TWO RANGES — 0 to 3 in low gear and 0 to 7 in high; reverse, 0 to 5.5.

IT'S RUGGED AND TOUGH
BUILT TO OUTPRODUCE AND OUTLAST

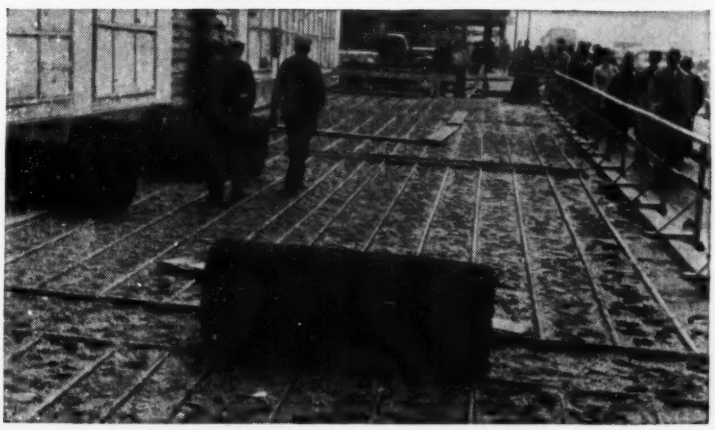
THE JOB JESTER

CARTOONS DRAWN FOR CONSTRUCTION METHODS

"Honest lady, I wasn't waving to you!"

"I suppose it's all right. He made it on his own time with his own materials."

"Peekaboo."



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'INCOR' HIGH EARLY STRENGTH PORTLAND CEMENT
"INCOR"
LONE STAR AIR-ENTRAINING PORTLAND CEMENT
LONE STAR MASONRY CEMENT

New York's Toughest Winter Proves Value of Best & Co.'s New Snowproof Sidewalk

•

Built with Lone Star Cement

THE new twelve-story building of Best & Co., on Fifth Avenue at 51st Street, New York City, is the latest word in store design, inside and out — even to its sidewalk. No snow-removal problem here! Heated sidewalks, designed by Alvord & Swift, of New York City, melt the snow as fast as it falls on the Lone Star Cement concrete.

Aside from operating economies, this snowproof sidewalk is effective "public relations" — as indicated by word-of-mouth and newspaper publicity. Here is an idea which deserves widespread consideration, in these days of the "old-fashioned" winter.

A total of 10,000 barrels of Lone Star Cements were used in constructing this distinguished new home for one of the nation's best-known stores . . . the best for Best's, you might say!

BEST & CO., Owner • JOHN LOWRY, INC., General Contractor • PETER STROBEL, Engineer • EDWARD E. ASHLEY, Consulting Engineer • SHREVE, LAMB & HARMON, Architects. KNICKERBOCKER CONCRETE ARCH CONSTRUCTION CO., INC., Arches, Finish and Sidewalks • ALVORD & SWIFT, Heating (including Sidewalks) and Air Conditioning • Lone Star Cements supplied by GENERAL BUILDERS SUPPLY CORP. — all of New York City.

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Offices: ALBANY • BETHLEHEM, PA. • BIRMINGHAM • BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS • JACKSON, MISS. KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK • PHILADELPHIA • ST. LOUIS • WASHINGTON, D.C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 27,000,000 BARRELS ANNUAL CAPACITY

TESTS GIVE RUBBER A GOOD GRIP ON LIFE

The tight adhesion of rubber-to-fabric is an important factor in the long-lasting quality of belting, hose, packings. That's why Quaker technicians are constantly making adhesion tests after samples of rubber and fabric are "welded" by miniature calenders shown above, to assure a tight union.

This is only one of eighteen rigid tests that raw materials and finished products *must* pass before receiving the Quaker stamp of approval. Yes—pre-testing provides quality and long service . . . assures worthwhile dividends for you through higher plant efficiency, lower operating costs.

Call your nearest Quaker distributor for speedy service. He and the Quaker sales engineer are teamed to provide accurate recommendations on Quaker pre-tested belting, hose, packings.

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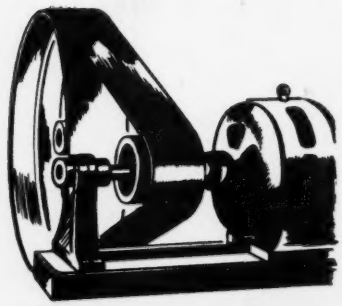
QUAKER RUBBER PRODUCTS

custom made for every industrial use

PRE-TESTING PAYS OFF WITH PEAK SERVICE

Check these pre-tested and proved Quaker products that help reduce operating costs for industries everywhere.

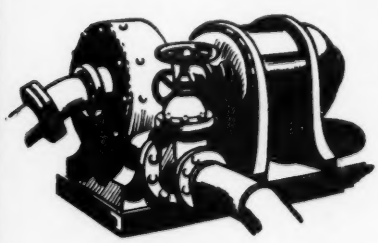


MORE POWER FOR PRODUCTION

In the complete line of Quaker transmission belts and belting pre-testing plays a vital part in providing long service, tight grip, slip-less power. Both V and flat types . . . transmission and conveyor, for all purposes.

STANDS PRESSURE, RESISTS WEAR

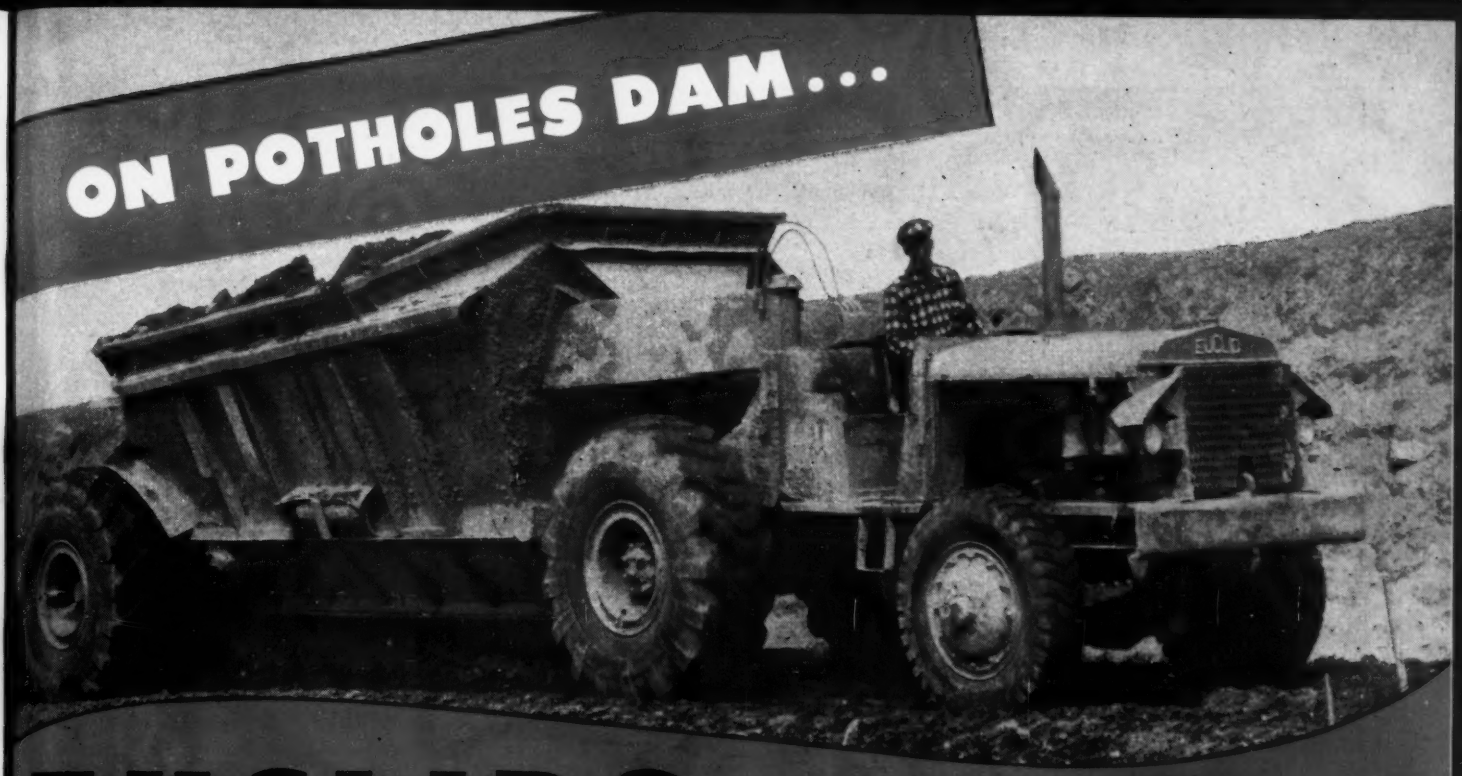
Quaker hose, in moulded and wrapped construction, is ruggedly built of pre-tested materials for trouble-free transmission of air, steam, water, acids, volatiles. Tight adhesion of rubber and fabric resists pressure, twisting, severe wear.



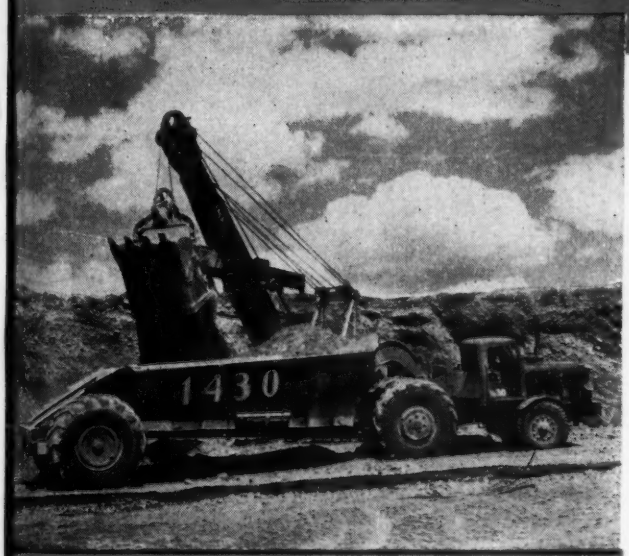
STOPS LEAKS . . . CUTS COSTS

Quaker pre-tested packings for all purposes stop hot leaks cold . . . provide tight-sealing, long lasting service for valves, piston rods, flanges. Ideal for packing against steam, water, acids, volatiles. Call Quaker for solution to your packing problems.

ON POTHOLES DAM...



EUCLIDS are hauling ALL the fill



Shown above is a Model LDT 25 cubic yard Bottom-Dump Euclid being loaded by a 3½ yard shovel. Loading time averages 1.1 minutes. Low loading height and wide top area provide an easy target for the shovel.

● Eleven million cubic yards of rock and earth must be moved to complete Potholes Dam near Moses Lake, Washington. This huge earth-fill dam — largest single project in the Columbia Basin Development — is being built by Lytle, Amis and Green Construction Companies.

Euclids — 36 of them — are hauling all the yardage at high speed over good haul roads. With loads of approximately 13⅓ bank cubic yards, 28 Bottom-Dumps average a 1.7 mile round trip in less than 14 minutes. Rock from the quarry for rip-rap is moved by a fleet of 8 Rear-Dumps. The "Eucs" are loaded by draglines and shovels ranging from 2½ to 3½ cubic yards.

By hauling big loads at high speeds, Euclids have helped the contractors keep this job ahead of schedule. Rugged construction and dependable performance of Euclid equipment under a wide range of operating conditions hold hauling costs down. That's why it's "Eucs" all the way for hauling fill on Potholes Dam.

Your Euclid Distributor or Representative will be glad to provide complete information and the services of a hauling equipment specialist without obligation.

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

EUCLID — TIME PIONEER

EUCLIDS *Move the Earth*

KEEP PRESSURE UP

KEEP COSTS DOWN

Tune in . . .
TEXACO STAR THEATRE
presents the
TONY MARTIN SHOW
every Wednesday night.
Metropolitan Opera
broadcasts every
Saturday afternoon.

TEXACO

TEXACO

Compressor Valves stay clean when lubricated with *Texaco Alcaid, Algol or Ursa Oils*

KEEP valves clean and you keep your compressors efficient, your operating costs low. Do this by lubricating with the *Texaco Alcaid, Algol or Ursa Oils* recommended for your compressors.

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When handling wet air, use *Texaco Regal Oils (R & O)*. They give the same fine lubrication, *plus* full protection against rust formation in coolers, air receivers and air lines . . . even during idle periods and in intermittent operation.

To assure longer drill life . . . greater footage at lower cost . . . use *Texaco Rock Drill Lubricants E.P.* They are designed to minimize wear, prevent rust.

Let a Texaco Lubrication Engineer explain the Texaco Simplified Lubrication Plan for construction machinery. It will save you time and money. Just call the nearest of the more than 2500 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, New York.

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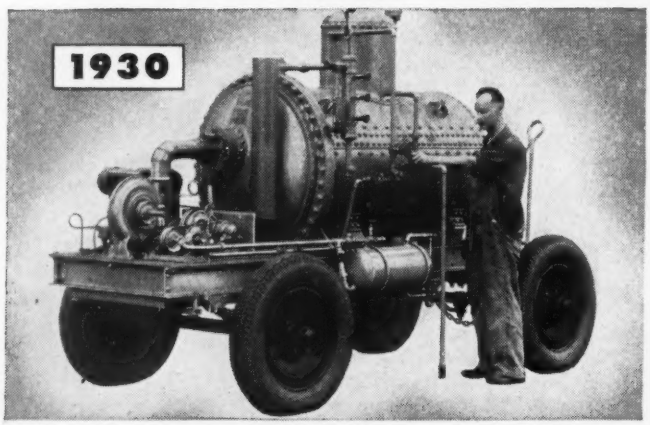
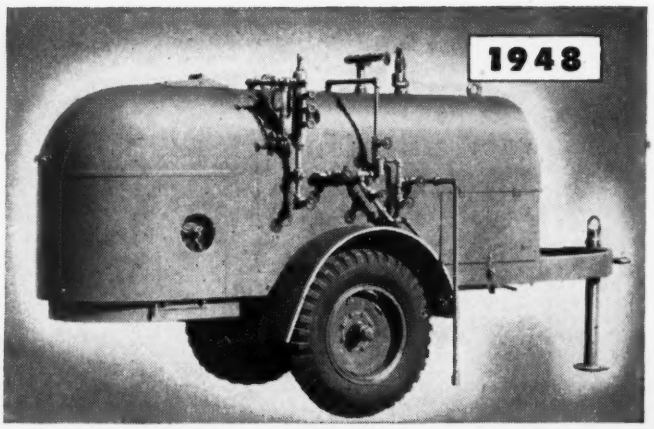
FOR ALL CONTRACTORS' EQUIPMENT

18 Years at Hard Labor

and still going strong!



Here's the pioneer model of Cleaver-Brooks tank car heaters. Note the compact, well integrated design. Some of these units are still on the job — giving low-cost heat and steam every day!



Today's streamline unit, much improved, comes in two and three tank car heating capacities. Dry coil steam condensate return — no water or heat losses — high heat transfer — low-cost fuel.

Most of the Pioneer Models of Cleaver-Brooks Tank-Car Heaters and Boosters built 18 Years ago are still on the job!

A check of service records of hundreds of owners of Cleaver-Brooks tank car heaters and boosters show that units purchased 16 and 17 years ago are still giving economical reliable performance. Right now there are more Cleaver-Brooks tank car heaters and boosters in service than all other makes of similar equipment combined! This equipment is specifically designed to do difficult jobs — the hardest jobs in all kinds of weather and places.

Modern Cleaver-Brooks tank car heaters and boosters, embody many years of experience in use and design. They include every feature that contributes to high efficiency performance and long life. Investigate Cleaver-Brooks bituminous heating equipment. Send for bulletin ...

CLEAVER-BROOKS COMPANY
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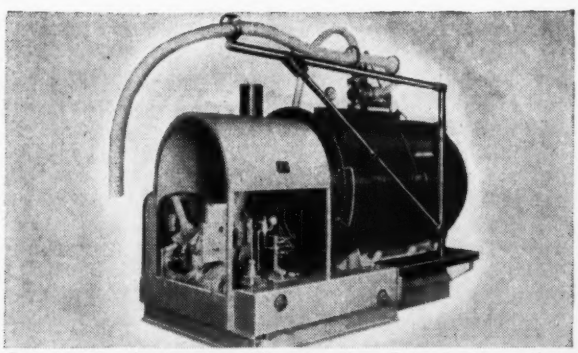
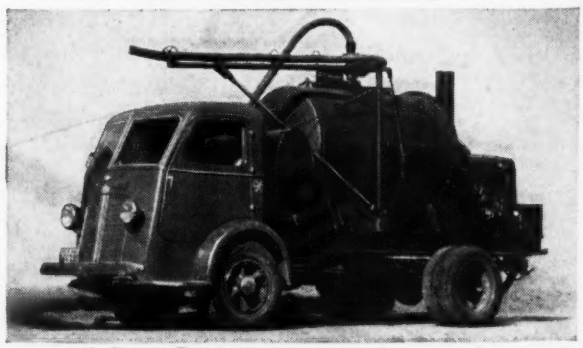


Portable pumping booster. Heats by direct firing in 1 operation. Loads directly to distributor, relay truck or returns to tank car. Available in 2 sizes for truck or trailer mounting.

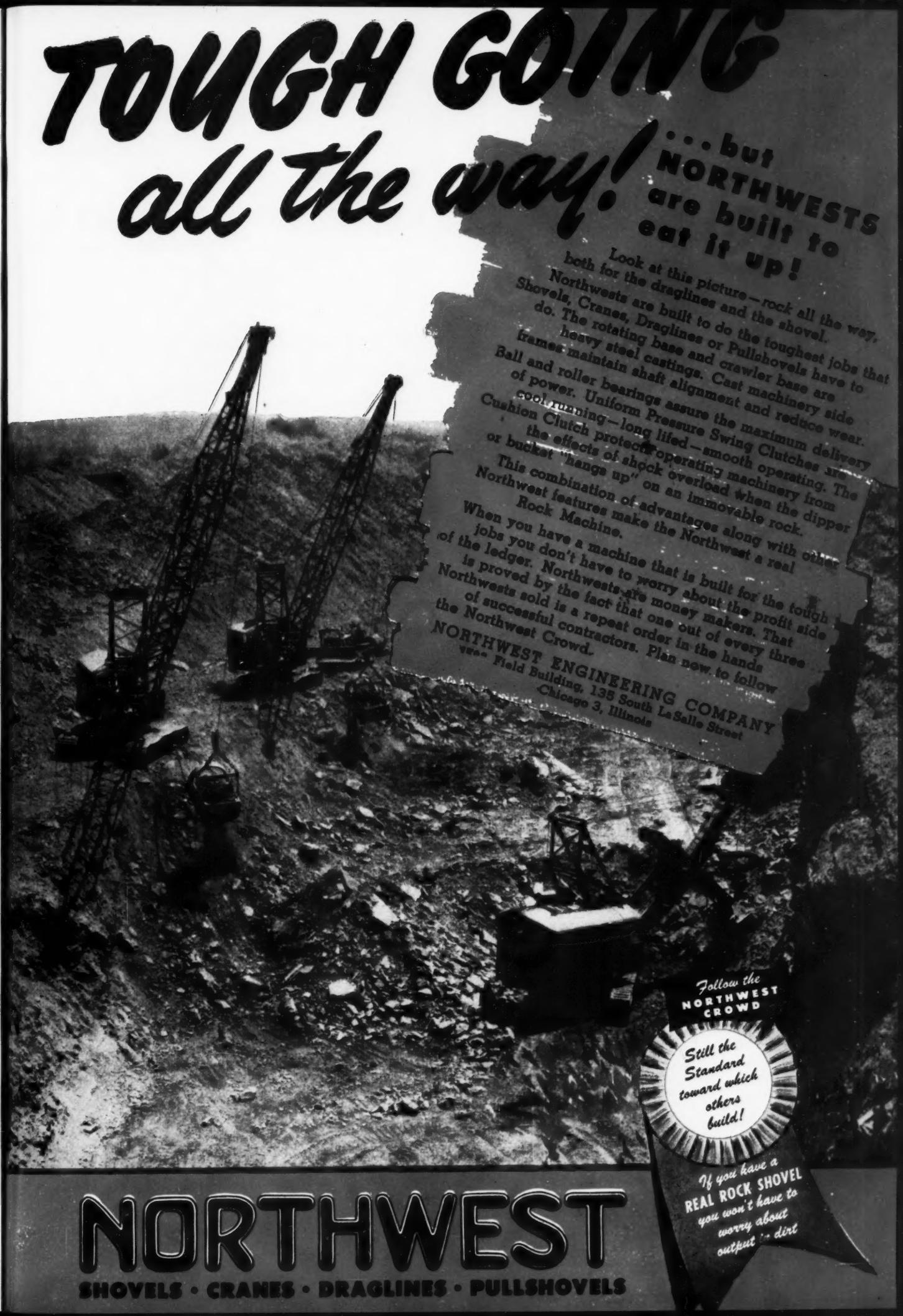


A Cleaver-Brooks booster installed on a truck.

Cleaver-Brooks

PIONEERS AND ORIGINATORS OF

TANK CAR HEATERS . . . BITUMINOUS BOOSTERS . . . AUTOMATIC STEAM PLANTS


TOUGH GOING
all the way!
...but NORTHWESTS are built to eat it up!
Look at this picture—rock all the way, both for the draglines and the shovel. Northwests are built to do the toughest jobs that Shovels, Cranes, Draglines or Pullshovels have to do. The rotating base and crawler base are heavy steel castings. Cast machinery side frames maintain shaft alignment and reduce wear. Ball and roller bearings assure the maximum delivery of power. Uniform Pressure Swing Clutches are cool running—long lifed—smooth operating. The Cushion Clutch protects operating machinery from the effects of shock overload when the dipper or bucket "hangs up" on an immovable rock.
This combination of advantages along with other Northwest features make the Northwest a real Rock Machine.
When you have a machine that is built for the tough jobs you don't have to worry about the profit side of the ledger. Northwests are money makers. That is proved by the fact that one out of every three Northwests sold is a repeat order in the hands of successful contractors. Plan now to follow the Northwest Crowd.
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Follow the NORTHWEST CROWD
Still the Standard toward which others build!
If you have a REAL ROCK SHOVEL you won't have to worry about output — dirt
NORTHWEST
SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

FOR POWER . . . FOR HANDLING EASE

CHAMPION

OF THE FEATHER WEIGHTS

Thor

NO. 28 SINKER ROCK DRILL

(30 Pound Class)

The better the tool the more places you'll find it. That's the secret of the amazing acceptance of the Thor "28"—its exceptionally powerful rotation for such a small and compact drill (30 pounds in 18-¼") have carried its popularity from secondary drilling in the mine and quarry to the general construction field . . . to industries for general maintenance and drilling anchor holes for machinery installations. Try the champion . . . *first.* Call a Thor dealer for a demonstration.

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[illegible]SILY REPLACEABLE CH[illegible]K

AUTOMATIC LUBRICATION

FORGED STEEL

FAST BLOWS

Thor PORTABLE POWER TOOLS

PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS

ROME *four O four*

... Unchallenged for Power

Here is the versatile Giant of Power . . . built to do the heavy work for better highways, airport sites and other big projects. Not only is this the biggest grader ever built, but the fastest material-moving grader. It will take more material at a single pass without stalling, than any other grader, and still have reserve power left.

A ROME 4.0.4 gets more work done with a minimum of effort. Its 104 h.p. Diesel engine is never taxed to the limit of performance. This guarantees longer life and super performance.

Every ROME operation, including steering, is accomplished by positive hydraulic pressure which responds to the operator's skill at a finger's touch on the controls in the cab, even under the heaviest conditions. Because of hydraulic controls, and since oil is slightly compressible, all shock and strain is absorbed and cushioned in oil. The simple design of the hydraulic system means trouble-free maintenance.

A ROME 4.0.4 can't be beat in work capacity, operating convenience, or job performance. Its performance records all over the world prove that costs can be cut and precious time saved.

Ask us to prove that ROME 4.0.4 is the Biggest and Most Powerful Grader ever built. Write today for catalog on ROME Grader specifications and name of nearest ROME Grader Distributor. It is an invitation to see for yourself ROME 4.0.4 advantages that pay dividends to its owners.

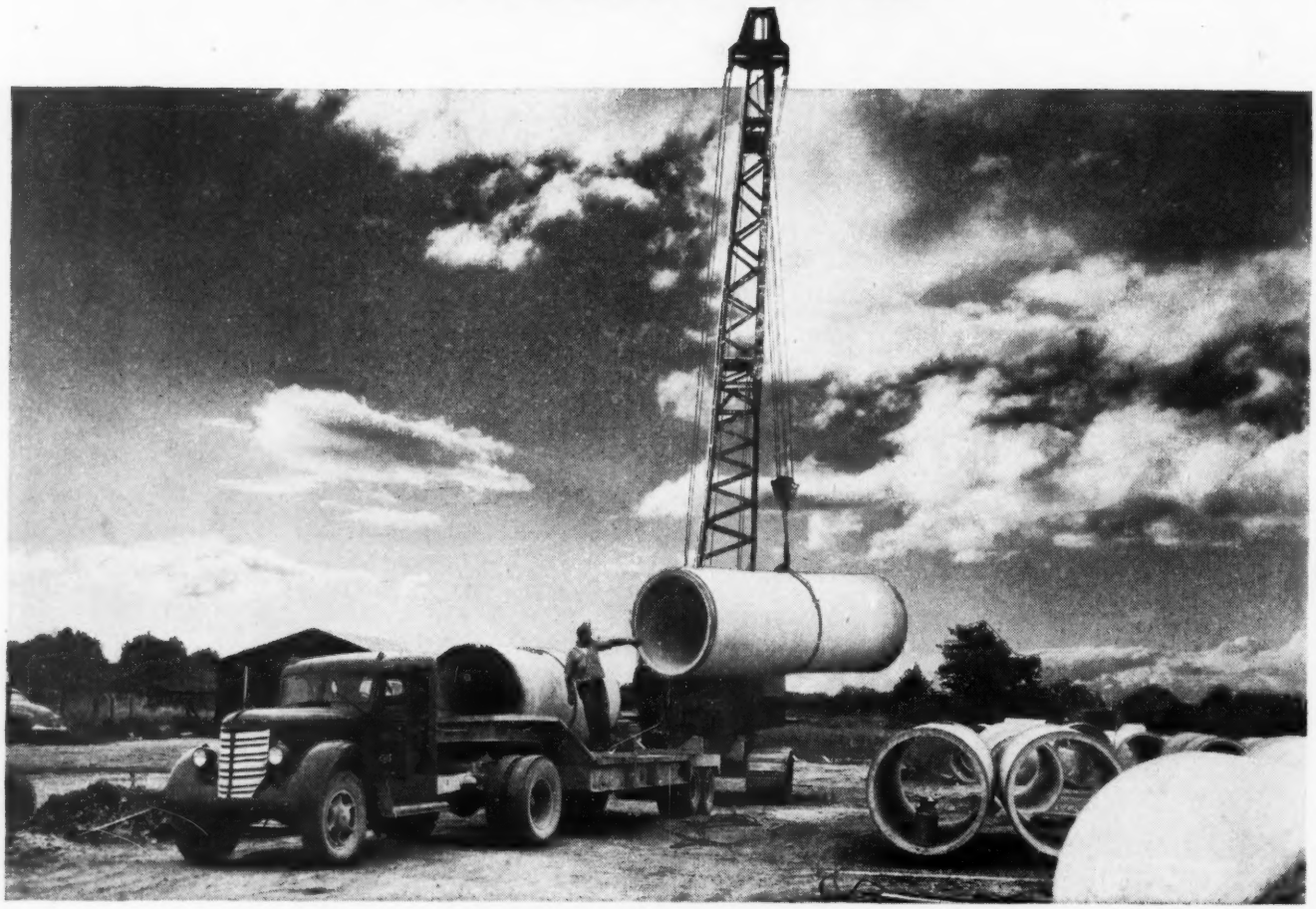
SMALLER ROME GRADERS
4·0·3 and 4·0·2
For Selective Top Performance.

THE UNION FORK AND HOE COMPANY
ROME GRADER AND MACHINERY DIVISION
ROME - - - NEW YORK - - - U. S. A.

Gulf Quality Lubricants and Fuels

help maintain rapid pipe delivery service

on 78-mile water line



Lock Joint Pipe Company has the contract to provide 48-inch, 36-inch, and 24-inch reinforced pre-stressed concrete cylinder pipe for the 78-mile water pipeline now being constructed in northern Michigan. This is an $11,500,000 project. The 48-inch line will convey water from Lake Huron at Whitestone Point to 36-inch and 24-inch branch lines that will deliver it to the city of Saginaw, Michigan.

"TO KEEP AHEAD of the laying contractors on this rush job, we have to keep our trucks moving fast—and we can't take chances on breakdowns," says the Lock Joint Pipe Company. "That's why we specify Gulf lubricants and fuels. These quality petroleum products keep our trucks continuously on the job, and we have rock-bottom maintenance costs."

On all types of construction projects, Gulf quality petroleum products play an important part in keeping equipment rolling. Their extra value shows up particularly on tough schedules and under punishing operating conditions. Gulf lubricants provide greater protection against delays caused by mechanical troubles — and Gulf fuels help contractors get an extra margin of performance from their mechanized equipment.

Write, wire, or phone your nearest Gulf office today and arrange to use Gulf higher quality lubricants and fuels on your next job. They are quickly available to you through 1200 warehouses located in 30 states from Maine to New Mexico.

GULF

Gulf Oil Corporation
Gulf Refining Company

Division Sales Offices:
Boston · New York · Philadelphia
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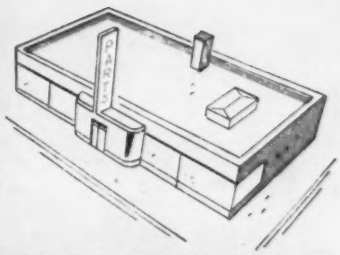
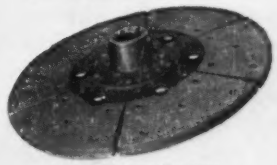
Velvetouch ALL-METAL CLUTCH FACINGS AND BRAKE LININGS



STOCKED FOR YOUR CONVENIENCE BY 1263 LEADING CONSTRUCTION EQUIPMENT AND PARTS SUPPLY HOUSES

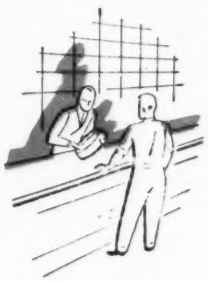
POWER CONTROL UNIT FACINGS



MASTER CLUTCH PLATES

BRAKE BAND LININGS

STEERING CLUTCH DISCS



Back of every Genuine Velvetouch part is a nationwide organization of efficient supply houses . . . serving thousands of operators who know from experience that Genuine Velvetouch lasts longer because it's *all-metal*. That's why leading tractor and earthmoving equipment manufacturers use and recommend Velvetouch . . . just as you should demand and accept only Genuine Velvetouch replacement parts.

WAREHOUSING CENTERS

ATLANTA—119 14th Street N. E., Atlantic 5, Georgia
BOSTON—171 Brighton Avenue, Boston 34, Mass.
CHICAGO—2800 South Parkway, Chicago 16, Ill
CLEVELAND—1392 E. 51st Steet, Cleveland 3, Ohio
DALLAS—3407 Main Street, Dallas 1, Texas
LOS ANGELES—1110 S. Hope Street, Los Angeles 15, Cal
PHILADELPHIA—97 E. Montana Street, Philadelphia 19, Penna
Portland—636 N. W. 16th Ave., Portland 9 Oregon
SAN FRANCISCO—424 Bryant Street, San Francisco 7, Cal
The S. K. Wellman Company of Canada, Ltd., 197 Laird Drive, Toronto 12, Ontario

FOR BRAKE AND CLUTCH USE Velvetouch

THE S. K. WELLMAN CO.

1374 East 51st St • Cleveland 3, Ohio

WORLD'S LARGEST MANUFACTURERS OF ALL-METAL CLUTCH FACINGS AND BRAKE LININGS

CHOOSE THE SAW THAT GIVES YOU ALL 3

MODEL 50-A

PRODUCTION

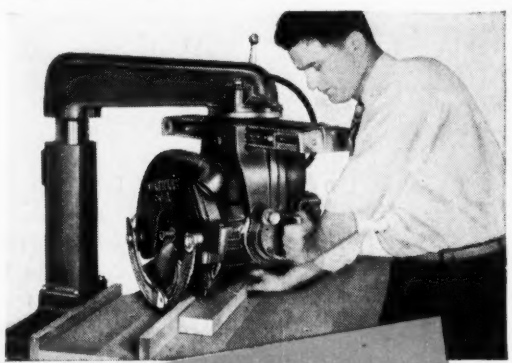
Where value is measured in terms of performance and production, general contractors, lumber yards and industrial users depend on the speed and capacity of the Multiplex 50A. Powered by 3, 5, 7½ or 10 H.P. motors, these sturdy 50A's are well suited for both mill work and production sawing. Roller bearing glide action provides the same ease of operation found in smaller capacity models.

PRECISION

The Multiplex was designed for careful exacting work as well as production. On any operation the saw is quickly positioned with the use of easily legible, rip, bevel and miter scales, accurately calibrated and conveniently located. Saw moves with smooth roller bearing precision on nitralloy track.

Easily legible scales, conveniently located at front of machine, accurately measures width at rip from either front or rear fence.

Exclusive with Multiplex -- left as well as right hand mitering up to 90°.



VERSATILITY

Exclusive with all Multiplex saws -- the center pivoted track which permits left as well as conventional right hand mitering up to 90°. This "Versatile Elbow" feature also makes possible an unlimited number of saw positions. Another Multiplex advantage -- the movable table, controlled by conveniently located crank, brings the work to the operator, increases cutting capacity and steps up operational speed.

For lighter work investigate models 30A and 40A. Write today for literature and the name of your nearest Multiplex dealer.

CROSS CUT · RIP · BEVEL RIP · BEVEL CUT OFF
MITER · COMPOUND MITER · PLOW · SHAPE
DADO · RAFTER NOTCH · TENON · RABBET

RED STAR PRODUCTS, INC.
3455 VEGA AVENUE
CLEVELAND 13, OHIO, U.S.A.

MULTIPLEX
The Radial Arm Saw
WITH THE EXCLUSIVE
VERSATILE ELBOW

NEW

COMPLETE LINE
GORMAN-RUPP CONTRACTOR'S PUMPS

Gorman-Rupp Self-Priming Centrifugal Pumps have long led the industry in performance and dependability. NOW! Gorman-Rupp goes further ahead with a NEW LINE OF CONTRACTOR'S PUMPS. Streamlined inside, where streamlining counts, these new pumps are the Quickest Priming, Fastest Pumping, Never-Quit Pumps available.

Take quick priming: the New Model 40M 4" pump primes at 20 ft. suction in 33 seconds; at 30 ft. suction in 67 seconds. The New Model 90M 6" primes at 30 ft. suction in 80 seconds.*

Our challenge is no idle gesture. We want YOU to give these pumps an on-the-job test for your own satisfaction. We back our claims with this guarantee!

THE GORMAN-RUPP GUARANTEE

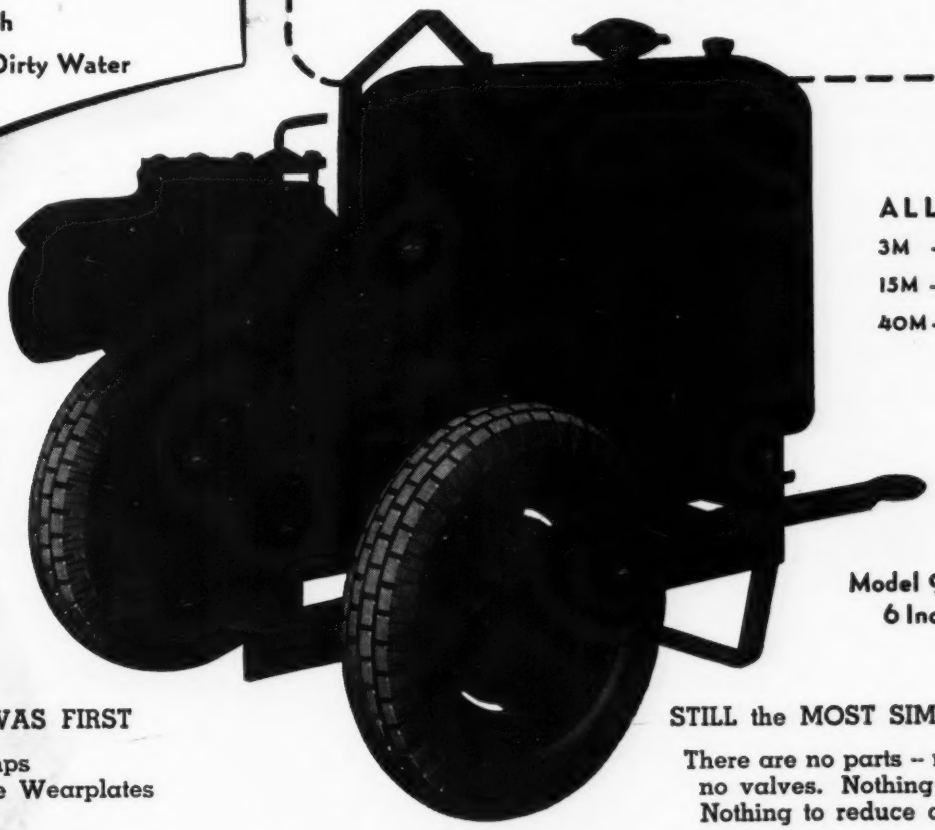
Our distributors are authorized to put a Gorman-Rupp Contractor's Pump on any pumping job, anytime, anywhere, alongside any other make pump, size for size. The Gorman-Rupp pump is guaranteed to pump more dirty water, more hours, using less gasoline, to prime quicker and at higher suction lifts than any other self-priming pump. If it isn't the best all around pump, our distributor will accept the return of the Gorman-Rupp pump and pay the user any installation expense incurred.

* Sea level. Performance data inquiries invited.

Challenging

ANY CONTRACTOR'S PUMP, SIZE FOR SIZE, TO

1. Prime as Quick
2. Prime as High
3. Pump More Dirty Water



ALL SIZES
3M - 7M - 10M
15M - 20M - 30M
40M - 90M - 125M

Model 90M
6 Inch

GORMAN-RUPP WAS FIRST
- To Build Blue Pumps
- To Use Renewable Wearplates

STILL the MOST SIMPLE PUMP

There are no parts -- no ports -- no valves. Nothing to clog. Nothing to reduce capacity.

Write for the new Contractor's Pump Bulletin 8-CP-11.

THE GORMAN-RUPP COMPANY

308 N. BOWMAN STREET • MANSFIELD, OHIO

DUMPTOR no-turn shuttle STEPS UP OUTPUT 11.6%

You save 2 slow turns every trip ... travel at same speed both ways

You save turn time . . . gain more productive haul time on shuttle hauls with Dumptors because Koehring constant-mesh transmission makes the same three speeds available in either direction. Time studies prove that elimination of two turns every trip — one at the loading unit, one at the dumping unit — often saves as much as 30 seconds every round trip. On a 1,000' haul (15.4 round trips per hour) Dumptor No-Turn Shuttle Operation gains 7.7 minutes every hour. Table at right quickly shows you what this factor alone can mean to you in extra yardage gained.

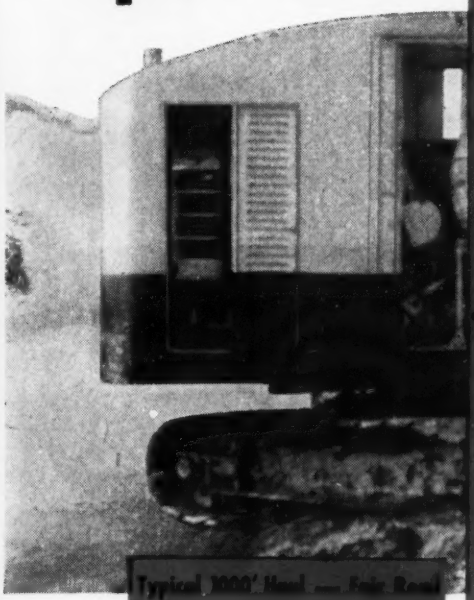
What's more — fast, easy spotting and 1-second gravity dump keep production high. For faster hauling on your off-the-highway jobs, see your Koehring distributor TODAY.

FAST, EASY SPOTTING...SAVES HAUL TIME...DUMPS

KOEHRING COMPANY

Subsidiaries JOHNSON • KWIK-MIX • PARSONS

Haul per UNIT



Typical 1000' Haul — Fair Road		
	No-Turn Shuttle Operation	2-Turn Shuttle Operation
Time Per Trip	3.9 min.	4.4 min.
Trips Per Hr.	15.4	13.6
Yards Per Hr.	69	61

(4.5 Yd. Payload)

Yardage Gained — 8 yds.
(11.6% per unit per hour on 1000' haul.)

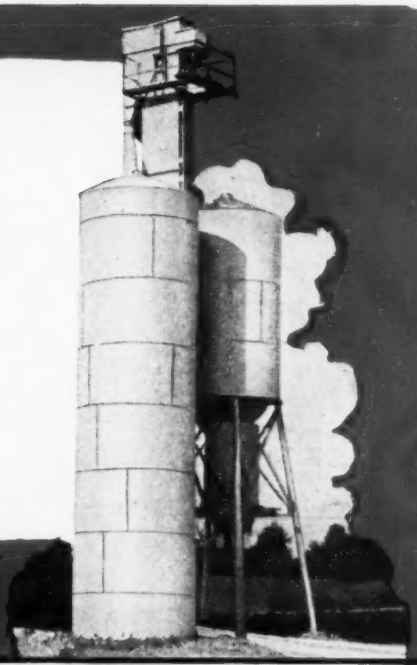
IN ONE SECOND

MILWAUKEE 10, WISCONSIN

Top Capacity plus Full Portability

Johnson Twin Silo bulk cement plant stores as much as 1550 barrels of cement, yet is fully portable. Welded construction speeds erection. When disassembled, units easily load on flat cars or flat bed trucks.

Other sizes:
1274 bls. 990 bls. 708 bls.



C. S. JOHNSON
CHAMPAIGN, ILLINOIS
KOEHRING SUBSIDIARY

Straight, Clean Trenches for Sewers, Pipe, Water Mains

Parsons 250 Trenchliner*, product of more than 40 years of trencher building experience, incorporates all the desirable features that make money for you on trenching jobs. Telescoping boom for easy depth adjustment. Shifts from side to side across full Trenchliner width.

* Reg. Trademark.

PARSONS COMPANY NEWTON, IOWA
KOEHRING SUBSIDIARY

Full Batch Discharged in 7 Seconds

Tilted Flow-Line Discharge Chute, exclusive on the Kwik-Mix Dandie line of concrete mixers, reaches deeper into the drum, intercepts tumbling concrete at just the right angle to maintain natural flow-line in discharge. Kwik-Mix Dandie mixers are available in the following sizes: 3½-S, 6-S, 11-S, 16-S.

KWIK-MIX COMPANY PORT WASHINGTON, WISCONSIN
KOEHRING SUBSIDIARY

READY TO USE UNI-FORM SYSTEM
FAST START — FAST FINISH

Illustrating the rigidity of UNI-FORMS with only one-side alignment.

FLOOD CONTROL

Note pleasing appearance, sharp, accurate corners of these UNI-FORMED buildings.

INDUSTRIAL

RESIDENCE

Inside forms erected—conduit, ducts, window frames nailed directly to the UNI-FORM face.

SAVE TIME, LABOR, MATERIALS

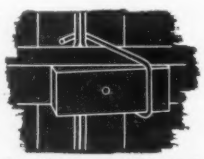
The UNI-FORM System is widely used for every type of concrete construction—it combines unusual versatility with extremely low material and labor cost . . . factors which add up to better, faster, more economical building.

The plywood faced, steel-framed UNI-FORMS are faster to erect, easier to strip and require alignment on one side only. Simple mechanical assembly with UNI-FORM Ties and Tie Keys produces a tight, rigid form which assures walls of uniform thickness from top to bottom. Special forming requirements such as pilasters, offsets, brick ledges, etc., are easily handled.

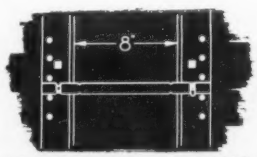
RENT UNI-FORMS WITH AN OPTION TO PURCHASE

It will pay you to investigate the many advantages the UNI-FORM System can bring to your concrete form work. Try them . . . we know you will buy them.

Uni-Form Ties and Tie Keys securely lock the UNI-FORMS.



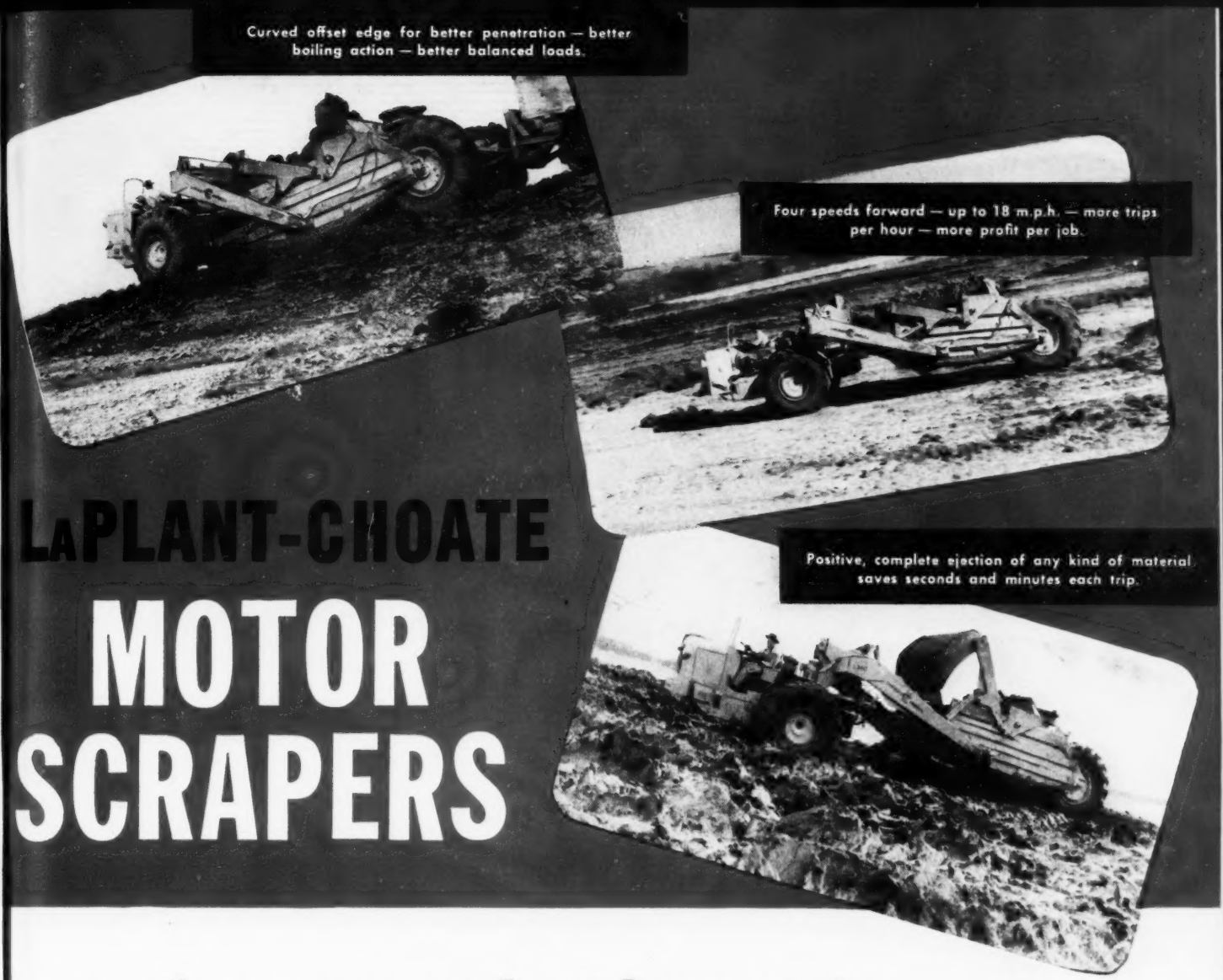
Simplified method of attaching alignment to the forms.



Uni-Form Ties accurately spread UNI-FORMS, assure positive breakback.

UNIVERSAL
Form Clamp Company
Founded 1912
1238 N. Kostner · Chicago 51
Better Service Wherever You Build

Concrete Forms · Form Systems · Form Clamps
Form Ties · Reinforcing Bar Supports and
Concrete Specialties of all types.


Curved offset edge for better penetration — better boiling action — better balanced loads.
Four speeds forward — up to 18 m.p.h. — more trips per hour — more profit per job.
Positive, complete ejection of any kind of material saves seconds and minutes each trip.

LaPLANT-CHOATE MOTOR SCRAPERS

. . . produce more yards at lower cost

because THEY CONSISTENTLY GIVE YOU MORE HOURS OF TROUBLE-FREE PERFORMANCE!

With an absolute minimum of working parts, easy, trouble-free operation and maintenance assures a unit that will work hour after hour without costly down-time.

Simplicity of controls means easy operation. Double-acting hydraulic steering assures safe, positive steering with 60° turns each way without danger of jackknifing.

Improved, air-actuated LPC power control unit operates scraper with peak efficiency. Sixteen horsepower per struck yard of capacity for "plenty of power," up and down grade, in any material.

The scraper units are modern LPC scrapers which have been proved, by competitive test, to be the easiest loading, fastest spreading scrapers on the market!

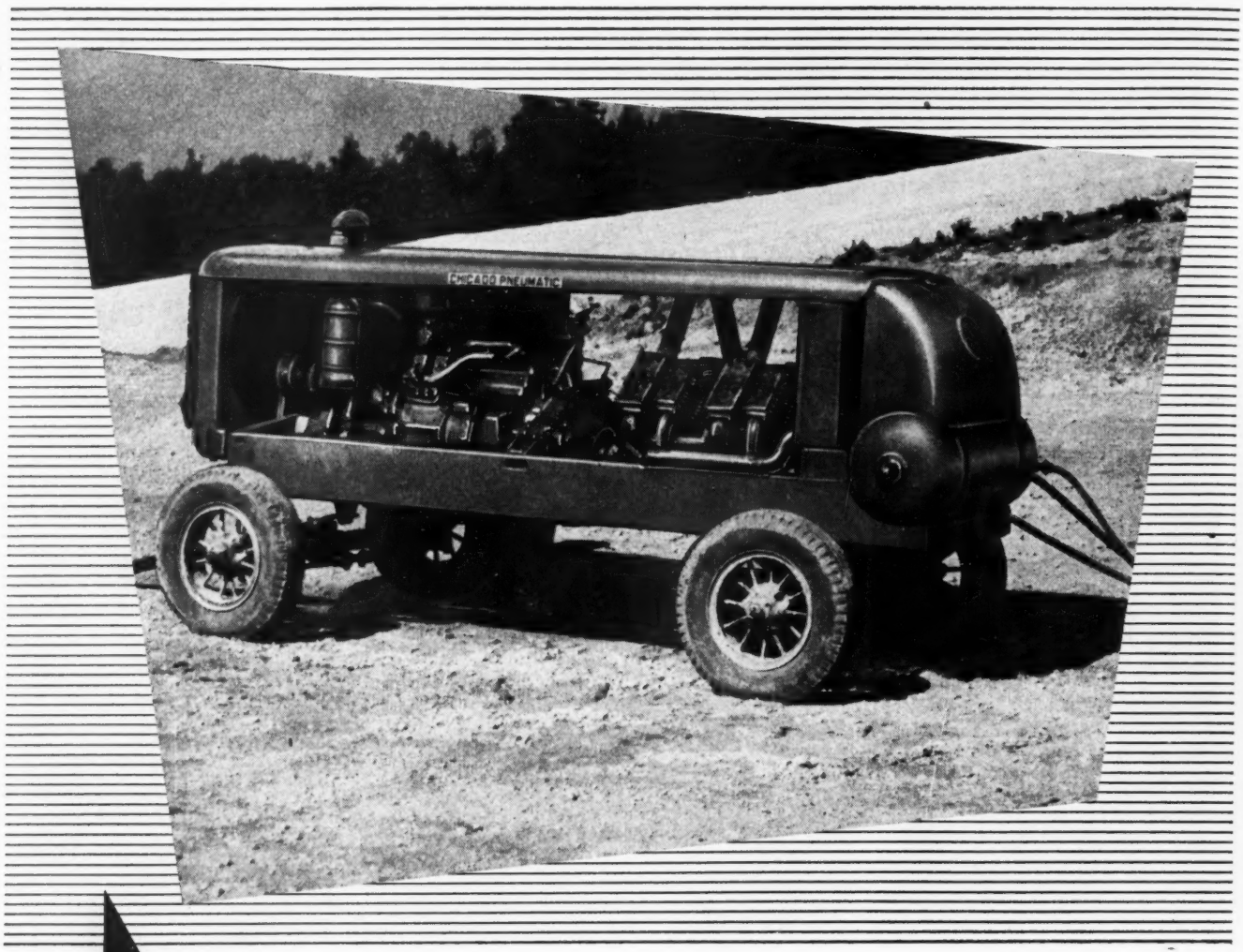
See your nearest LPC distributor for complete details and operating data. LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa; 1022 77th Avenue, Oakland, California.

LaPLANT-CHOATE

HIGH SPEED EARTHMOVING EQUIPMENT

FOR LOWEST POSSIBLE COST PER YARD..PER JOB..PER YEAR

...ROADS...45th Annual Convention and Road Show SOLDIER FIELD CHICAGO JULY 19-24, 1948



Economical Operation at Any Speed

CP Portable Air Compressors are popular with the contractor because he can always count on economical operation, whether the engine is running at full or partial speed. Thanks to the CP gradual speed regulator, engine speed keeps exact pace with air demands, holding fuel consumption to a minimum. This and other CP features effect fuel savings of 15% to 35%.

On the CP-500 Diesel-driven compressor illustrated, the six-cylinder Caterpillar D-13000 engine and the V-8 arrangement of compressor cylinders are further features that promote smooth, economical performance.

CP Portable Compressors are available in gasoline-driven models of 60, 105, 160, 210 and 315 c.f.m., actual capacity, and in Diesel-driven models of 105, 160, 210, 315 and 500 c.f.m. Write for full information.

CHICAGO PNEUMATIC TOOL COMPANY

General Offices: 8 East 44th Street, New York 17, N. Y.

AIR COMPRESSORS • ELECTRIC TOOLS • PNEUMATIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

Barber-Greene *Sensational*

NEW CAR UNLOADING TEAM!

unloads car of rock or crushed stone in 45 minutes

358 B-G HOPPER CAR UNLOADER

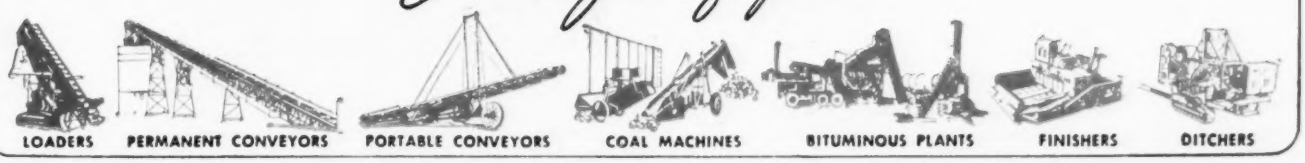
Here's a rugged all-material unloader that's completely new in design. The 358 cuts hopper car unloading time as much as 90%—unloads most any bulk product from fine sandy material to large-sized rock aggregates at capacities up to 3 tons per minute—empties a 60-ton car in as little as 45 minutes without jam-ups or delays. There's *positive material flow at all times.* Easily "spotted" in track pit or above rails—really portable—can be towed at normal traffic speeds.

363 B-G PORTABLE CONVEYOR

The newly designed B-G Model 363 Portable Conveyor is an extremely flexible machine that will prove to be profitable to yards, industrial plants, contractors, etc. Speeds up stockpiling or transfer of material from car or stock pile to trucks. Entirely new in design, the 363 features V belt drives, pneumatic tires, shock absorbers, towing hitch, and a host of new improvements. Send for new attractive literature on these two great B-G machines.

BARBER · GREENE COMPANY · AURORA, ILLINOIS

Constant flow Equipment



LOADERS | PERMANENT CONVEYORS | PORTABLE CONVEYORS | COAL MACHINES | BITUMINOUS PLANTS | FINISHERS | DITCHERS

TO MOVE LOADS AND EQUIPMENT

Faster and at Lower Cost...

HAVE YOUR GENERAL TIRE DEALER SPECIFY, INSTALL AND SERVICE THE TIRES FOR THE JOB!

The General Earth-Mover for free-rolling wheels is designed to ride higher, roll more easily and use less energy from the power wheels. The self-cleaning tread is made up of thick, bold-faced blocks which spread the load weight evenly and protect the carcass against cutting and bruising. Easy-flexing tire body absorbs obstructions that would injure a hard tire. Those who use it know... this tire moves more yards of dirt faster, and at lower cost.

The GENERAL TIRE

General Non-Directional Cleated Tire is unsurpassed for extra drive wheel traction in soft ground, sand or gravel. Equal traction is developed forward or backward, making this tire well suited for cranes, shovels or dump trucks. A wide center rib provides an easy steering, smooth ride on the highway, and assists in the long wear qualities built into the tire... from reinforced bead to extra thick tread. Shock absorber construction absorbs bumps that would become bruises.

The General L. C. M. has proved itself as the outstanding truck tire for hard, heavy hauling where extreme tire strength and exceptional traction requirements are the deciding factors. With the "V" of the power cleats pointing forward, drive wheels are ready to go through almost any kind of mud, slush or poor road condition; yet there is no sway and little noise on the highway. With the "V" of the power cleats pointing backward, The L. C. M. is suitable for power wheels that spend part of their time on paved roads, for drawn wheels... for long, even wear and enormous load capacity.

THE GENERAL TIRE & RUBBER COMPANY
AKRON, OHIO

NEW REVERSING REDUCTION GEAR BOX

STANDARD ON 1948 MODELS

SCOOPMOBILE

New Improved Gear Ratios

Engineering research has improved SCOOPMOBILE performance. Incorporation of the new Reversing, Reduction Gear Box into SCOOPMOBILE'S rugged power train provides additional gear reductions of 3.01 to 1 forward, and 2.5 to 1 reverse.

The Gear Box unit, using a steel fabricated case with case hardened, precision gears is constructed to stand up under continuous heavy-duty operation. Weight of the unit is 150 lbs.

Two factors provide increased flexibility:

1. Speeds can be reduced to less than 1 MPH. for loading purposes.
2. Four speeds of motor transmission are available in both forward and reverse.

Speeds are pre-selected and quickly changed for loading or high speed operation. A neutral position is provided to disengage the Gear Box as well as the transmission when the machine is being moved between jobs. Because a SCOOPMOBILE'S load is carried in a scoop situated directly over the drive wheels, a downward pressure insures positive traction under the most adverse conditions.

Gear Box is standard equipment for all SCOOPMOBILES on order as of December 15, 1947. The unit is available for installation on existing Model B machines.

Means

BETTER, EASIER LOADING

The slow forward speed — less than 100 feet per minute . . . permits synchronizing rate of forward travel with the closing action of the bucket. Aids getting a full load.

Means

4 OPERATING SPEEDS

— Both Directions

Desired speed can be pre-selected in the motor transmission, and direction of travel is then obtained by simply moving the gear box shifting lever forward or backward.

Means

OPERATORS TRAINED

—Quicker

Inexperienced operators can handle capacity loads after the first few trial runs. Operators can select the speed at which they are most capable of handling the machine.

There is a Scoopmobile Dealer near you. Write for complete information.

MIXERMOBILE DISTRIBUTORS, INC.

6855 N. E. HALSEY ST. **PORTLAND 16, OREGON**

Keep'em on the Job...

SINCLAIR
SPECIALIZED
LUBRICANTS

...with

CORRECT LUBRICATION

A vital factor in keeping equipment available for continuous service is correct lubrication of every part of the vehicle. Failure of the smallest part—due to deficient lubrication—may put the entire machine in the shop . . . and shop time is non-revenue time.

Sinclair All-Point lubrication can be your guard against equipment lay-off. Sinclair lubricants are made for specific service at every individual point . . . to help keep machines moving.

Try . . . Opaline TBT, or Tenol in Diesels for sure, safe engine lubrication . . . non-foaming Opaline Gear Lubricant with extreme pressure properties to prevent galling and scuffing . . . Shamrock Lubricant for stay-put chassis lubrication in all weather . . . Sincolube for assured, enduring wheel bearing lubrication.

Let these tested lubricants help keep your equipment available . . . regularly and economically . . . always.

SINCLAIR AUTOMOTIVE LUBRICANTS

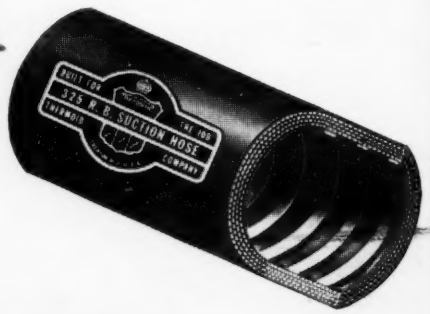
FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE
SINCLAIR REFINING COMPANY, 630 FIFTH AVE., NEW YORK 20, N. Y.

Thermoid Water Suction Hose

Made in a Type to Suit Every Job

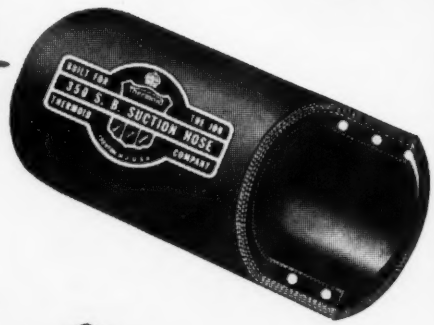
Water Suction Hose is generally subjected to rough usage. Thermoid has studied carefully the service conditions under which it is used and has designed several types from which you can pick the one best suited to the job you have to do.

For the Toughest Kind of Duty Use Thermoid #325 Type



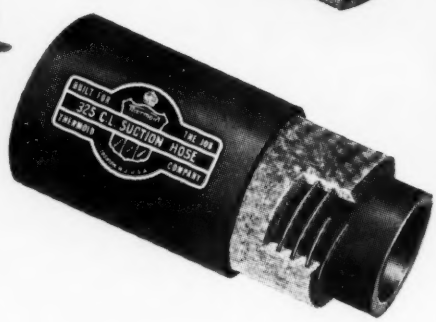
This hose is made in smooth or rough bore. Use smooth bore when sand, dirt or other abrasives are in the water to be handled. Use the more economical rough bore type when the water is free of abrasives. Each type has a high quality tube, strong wire reinforcing, then plies of specially woven duck with a weather and abrasion resisting cover. Supplied in sizes 1¼" to 6" in lengths up to 50 ft.

For Less Severe Service Use Thermoid #350 Type



Somewhat lighter in construction, but with plenty of long life quality for less severe jobs. This hose comes in smooth or rough bore, wire and duck reinforced, with weather and wear resisting cover. Supplied in sizes 1½" to 6" and in lengths up to 50 ft.

For Normal Light Duty Use Thermoid Type #325-CL



It's an economical hose for normal light duty service. The water way is smooth, resistant to action of gritty particles, the reinforcement of high carbon steel wire interwoven with heavy cotton yarn, cover of sufficient thickness and strength to resist abrasion and rough handling. Furnished in sizes of 1½" to 6", in lengths up to 50 ft.

Other types of Thermoid Suction Hose include Oil Suction, Sand Suction, Agricultural, Hard Rubber and Fire Engine. Catalog information on request.

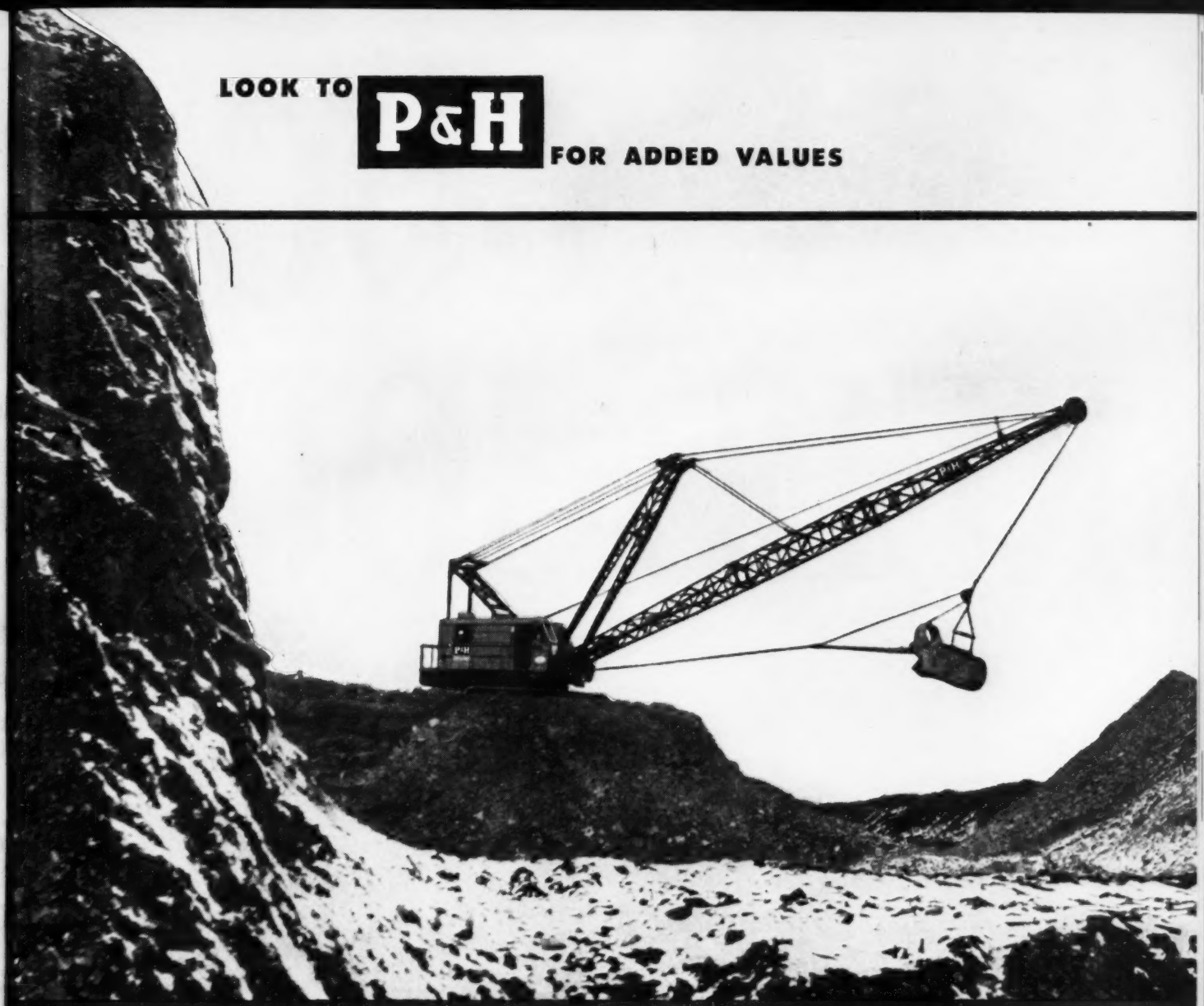
It's Good Business To Do Business With Thermoid

Thermoid concentrates its manufacturing for industry on a well integrated line of industrial rubber and friction materials. The company itself is large enough for precise, low cost, high quality production, but small enough to allow personalized attention to customers' specific problems.

The Thermoid line includes: Transmission Belting • F.H.P. and Multiple V-Belts • Conveyor Belting • Elevator Belting • Wrapped and Molded Hose • Custom Molded Products • Industrial Brake Linings and Friction Materials.

Thermoid Thermoid Company · Trenton, N. J., U. S. A.
Automotive • Industrial • Oil Field • Textile Products

LOOK TO **P&H** FOR ADDED VALUES

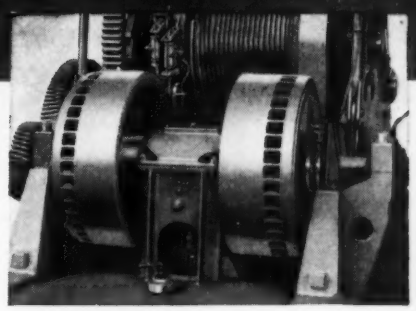


THE SWING'S THE THING!

And here's the kind of swing that's sweet music to production men on steady digging. It's the Magnetorque on P&H 1055 that transmits power for swinging—without mechanical contact—without wear—without time lost for clutch adjustments—without the high cost of lining replacements.

There's nothing to compare with the P&H Magnetorque swing—with its smooth, velvety action—with its simple construction.

If you haven't seen the 1055 in action, write us. We will gladly tell you where the nearest machine is located.



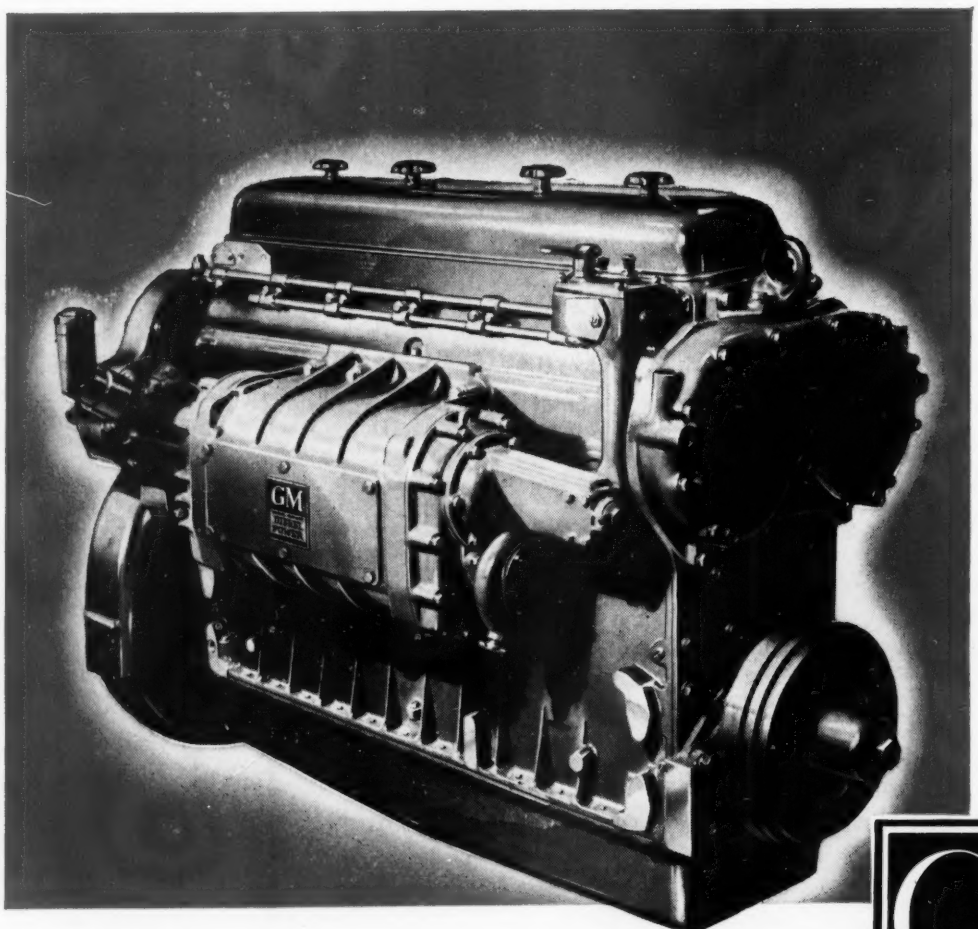
THE P&H MAGNETORQUE transmits power for swing electromagnetically — replaces swing frictions — eliminates the maintenance and repair work that goes with them. The Magnetorque unit will last the life of the machine.

P&H **EXCAVATOR**

4494 W. National Ave.
Milwaukee 14, Wis.

HARNISCHFEGER CORPORATION

GOOD
KEEP GOOD



DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES.. *Up to 200 H.P.* **DETROIT 28, MICHIGAN** MULTIPLE UNITS.. *Up to 800 H.P.*

GENERAL MOTORS

GM
GENERAL MOTORS
DIESEL
POWER

DIESELS COMPANY

Every day more and more well-known manufacturers of contractors equipment and other machinery are offering the General Motors Series 71 2-cycle Diesel engine as power for their products.

The reason is clear. These tough, dependable Diesels provide great power in moderate space. They start easily—pick up their load fast—run smoothly and use a minimum of low cost fuel.

GM 2-cycle Diesels produce power at every piston downstroke. They are designed for easier servicing; have no high-pressure fuel lines and offer a maximum of interchangeability of parts, engine for engine.

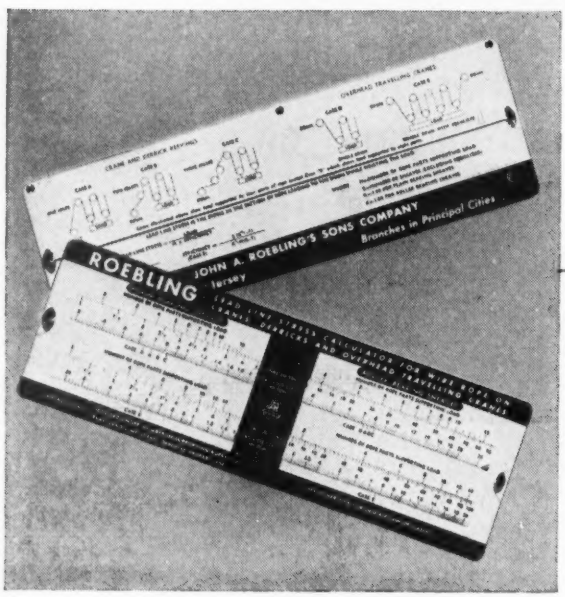
These are the factors which, together with Detroit Diesel's owner service policy and warranty, have earned for GM Diesel its enviable reputation.

LEADING MANUFACTURERS OF THE FOLLOWING EQUIPMENT OFFER GM SERIES 71 DIESEL ENGINES IN THEIR PRODUCTS:

Air Compressors
Arc Welders
Asphalt Plants
Buses
Cableways
Cranes
Distillation Equipment
Ditchers
Draglines
Dredges
Earthmoving Loaders
Evaporation Units
Feed Mills
Fire Pumps
Hoists
Industrial Locomotives
Locomotive Cranes
Logging Loaders
Logging Yarders
Mining Pumps
Motor Graders
Off-The-Road Vehicles
Oil Field Equipment
Pavers
Power Scrapers
Pumps
Road Rollers
Rock Crushers
Rotary Soil Tillers
Saw Mills
Screening Plants
Shovels
Soil Stabilizers
Stave Mills
Tractors
Trucks
Wellpoint Pumps

IT'S WISE FOR YOU TO SPECIFY GM DIESEL

Confidence- WITH ITS SLEEVES ROLLED UP!



YEAR BY YEAR, planes grow bigger . . . faster and safer. Man has unbounded confidence in his ability to build better and better planes. Never satisfied, he experiments and tests tirelessly, and aviation progresses.

With similar vision and confidence, Roebling has been pacemaker in the development and manufacture of products essential to the transportation and other industries. The active, widespread confidence it has won among technical men and operators throughout industry is Roebling's proudest asset. Look to Roebling for continued leadership . . . continual improvement in its products and engineering . . . continual progress.

WHAT SIZE OF ROPE? HERE'S YOUR ANSWER—FREE

DATA used by Roebling engineers themselves are embodied in this unique "slide rule". It's the Roebling Lead Line Stress Calculator for wire rope . . . tells you in a moment the safe and economical size of rope for every load . . . gives the right answer for all types of crane, derrick, and overhead traveling crane installations.

Here's information you can accept and act upon with complete confidence . . . just as you can specify Roebling "Blue Center" Steel Wire Rope for unsurpassed toughness, dependable reserve strength and the reduction of costly replacement shut-downs. Roebling was America's first wire rope maker, and "Blue Center" Steel Wire Rope is the finest that Roebling knows how to make.

Write for a Roebling Lead Line Stress Calculator — it's free. And let your Roebling Field Man tell you about installation and maintenance practices that prolong wire rope life. Call him at your nearest Roebling branch office.

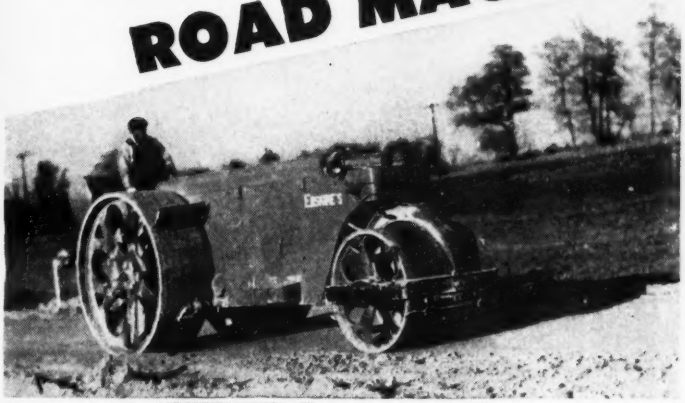
JOHN A. ROEBLING'S SONS COMPANY
TRENTON 2, NEW JERSEY
Branches and Warehouses in Principal Cities

A CENTURY OF CONFIDENCE ROEBLING

JR ROEBLING

★ WIRE ROPE AND STRAND ★ FITTINGS ★ SLINGS ★ SUSPENSION BRIDGES AND CABLES ★ AIRCORD, AIRCORD TERMINALS AND AIR CONTROLS ★ AERIAL WIRE ROPE SYSTEMS ★ ELECTRICAL WIRE AND CABLE ★ SKI LIFTS ★ HARD, ANNEALED OR TEMPERED HIGH AND LOW CARBON FINE AND SPECIALTY WIRE, FLAT WIRE, COLD ROLLED STRIP AND COLD ROLLED SPRING STEEL ★ SCREEN, HARDWARE AND INDUSTRIAL WIRE CLOTH ★ LAWN MOWERS

TO PRACTICAL MEN HUBER MEANS ROAD MACHINERY AT ITS BEST!



It is an easy matter for practical road men to spot "seasoned experience" in road machinery. It is reflected in the soundness of its design.....in the way it tackles a job.....in the engineered refinements that speak of a knowledge of road building and maintenance problems.

Huber Road Machinery reflects all this in full measure.....the husky 3-wheel automotive type Road Roller built in sizes from 3 to 12 tons....the variable weight Tandem Roller of maximum maneuverability from 3 to 12 tons.....the Maintainer for bulldozer, snowplow, broom, patch roller, etc.....each in its own way delivers top performance at low operating cost to save time and money on every road job.

Switch to Huber Road Machinery. It is the practical thing to do. See your nearest Huber dealer for a demonstration.

THE HUBER MFG. COMPANY • MARION, OHIO, U. S. A.

HUBER

3 Wheel • Tandem

ROAD ROLLERS *and* MAINTAINERS

1948

IN ~~1947~~ FOR THE

no other grader will perform so many
highway construction
and maintenance jobs
so well as the. . . .

99-H Th

FINISHING WITHOUT LEAVING TIRE MARKS . . . Blade extends 10 feet, 3 inches beyond rear wheel.

GRADING BETWEEN FORMS . . . All-Wheel Steer makes it easy to grade in reverse.

BUILDERS OF ROAD MACHINERY

Austin Western

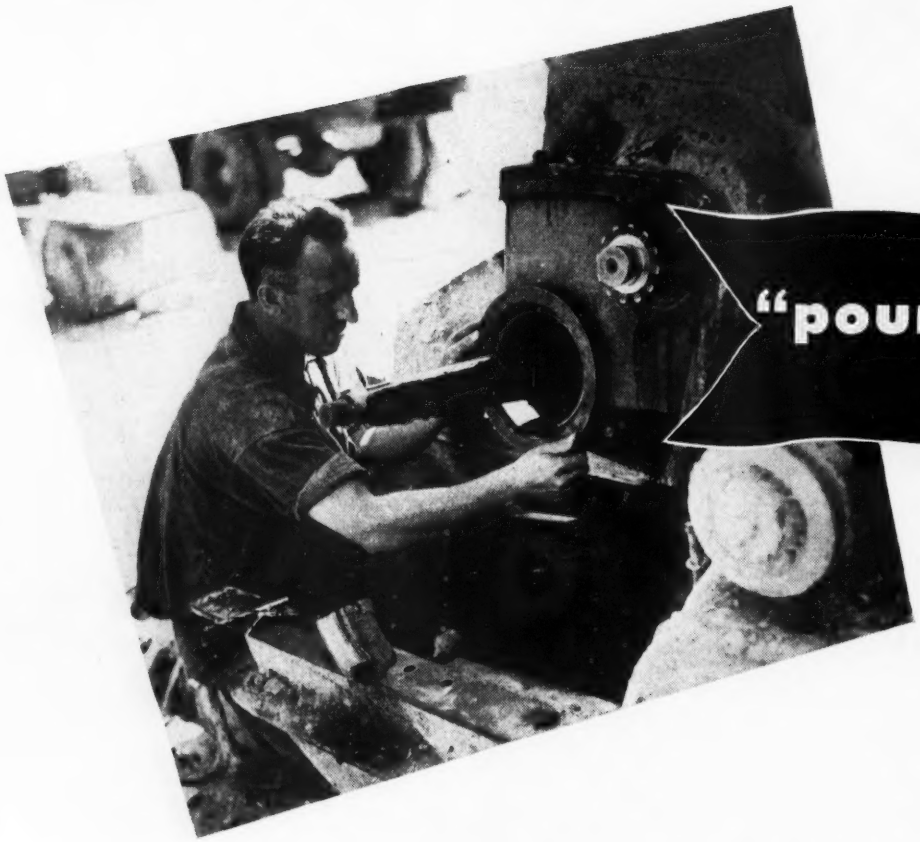
SINCE 1859

11th Consecutive Year

The Power Grader That Has Everything!

- All-Wheel Drive
- All-Wheel Steer
- Precision Sideshift
- Controlled Traction
- High-Lift Blade
- Extreme Blade Reach
- Completely Reversible Blade
- Full Hydraulic Control

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U.S.A.



That "pound of cure" for your equipment

costs less through the local distributor

Contractors know well the value of an "ounce of prevention" when it comes to keeping their equipment in good working order...

But no matter how carefully equipment is tended, breakdowns are inevitable... *an operator makes a mistake, a defect shows up, or wear and tear takes its toll.*

That's when idle equipment costs climb, job schedules begin to look overly optimistic, and job superintendents get gray hair.

And that's when the local distributor is a friend indeed. For the local distributor is ready and able to effect equipment repairs fast and economically, frequently the very same day and right on the job site.

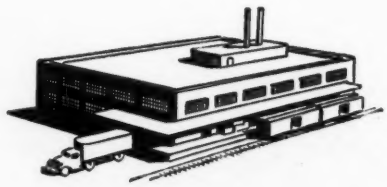
To perform this vital service, distributors maintain thousands of spare parts in anticipation of contractors' needs. And their repair trucks, ready for routine and emergency action, are manned by expert, factory-trained repairmen.

Here's how distributor service keeps your equipment operating costs *down*, job progress *up*.

- **Repairs are expedited through quick delivery of needed parts from convenient local depots*
- **Delay and expense of long distance factory contacts is eliminated*
- **Distributor's repairmen become, in effect, the contractor's own emergency repair crew*
- **The need for costly investment in spare parts at the job site is greatly reduced.*

To keep your equipment "on the job," to minimize costly delays and high equipment repair bills... work with your local distributor from planning to completion on every construction job.

Make Distributor's Headquarters Your Service Headquarters



No. 7 in a series of advertisements sponsored by ENGINEERING NEWS-RECORD and CONSTRUCTION METHODS showing how distributor services aid economical construction.

LION NATURALUBE D.H.D.

OIL FOR DIESEL AND HEAVY DUTY MOTORS

Basically Different 4 WAYS*

1 REMOVES HARD CARBON

Nature gave Naturalube remarkable carbon-removing ability. This oil takes harmful carbon off rings, pistons, valves and plugs while the engine runs . . . cuts power-loss and wear.

2 STRONGER PROTECTIVE FILM

The naturally tougher film of Naturalube stands up under the heat and shock of heavy duty operation . . . provides increased protection for motor parts.

3 GREATER PENETRATION AND ADHESION

Naturally greater penetrative qualities assure constant lubrication of close-fitting parts. Naturalube's greater clinging power assures lubrication from the moment the engine starts.

4 NON-CORROSIVE — SAFE

Naturalube does not contain nor form substances injurious to bearings and other metal surfaces. It's naturally safe!

*** RESISTS FORMATION OF SLUDGE**

Lion especially reinforces Naturalube D.H.D. to make it resistant to formation of harmful sludge and lacquer . . . to keep motors cleaner.

GUARANTEE

If you don't believe that Naturalube D.H.D. is the best oil you have ever used, Lion Oil Company will give you your money back!

Ask your Lion Distributor for complete information about D.H.D. or write to Lion Oil Company, El Dorado, Arkansas.

"Petroleum Promotes Progress"

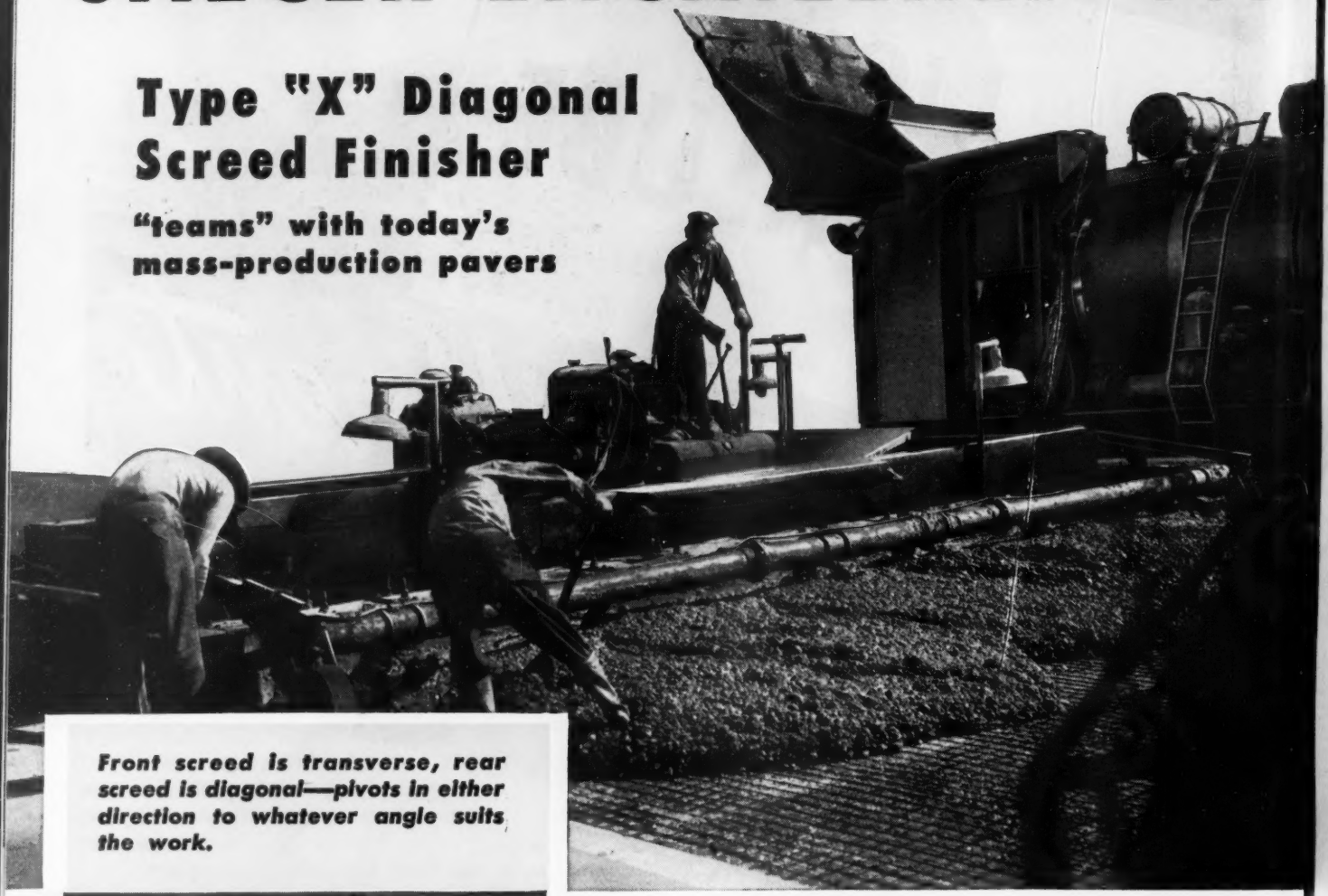
LION

LION OIL COMPANY, EL DORADO, ARKANSAS

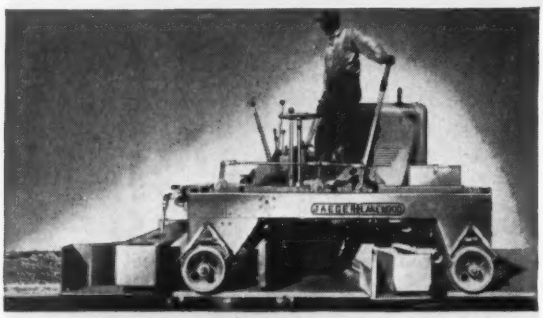
JAEGER-ENGINEERED for

Type "X" Diagonal Screed Finisher

"teams" with today's mass-production pavers



Front screed is transverse, rear screed is diagonal—pivots in either direction to whatever angle suits the work.



Re-Mixing-Compacting Spreader Gives 2-Paver Capacity with Minimum Paving Crew

The Jaeger 1948 model Concrete Spreader, teamed with a Jaeger Diagonal Screed Finisher, will spread and smoothly finish all the yardage you can pour with as many as two 34E dual drum pavers — makes paving a precision, mass-production operation done by power machinery. Re-mixing, compacting spreader screw, exclusive with Jaeger, eliminates segregation and resulting honeycomb, positively produces a denser, more uniform pavement than other spreading methods. Wide, oscillating strike-off can be furnished for concrete work or bituminous spreading-finishing.

FIRST BASIC IMPROVEMENT IN 31 YEARS

Job-tested for 18 months, on highways from New York to California, the Type "X" Diagonal Screed Finisher now offers you six proved advantages for your 1948 paving work:

1. ***More accurate than any transverse finisher:*** Diagonal rear screed, always meeting the material at a point different from the transverse front screed, equalizes irregularities due to forms or other causes, slices off high spots, fills in the low ones.

2. ***Less hand work and equipment needed behind finisher.***

3. ***Finishes flush to upper form on curve elevations and pitched slab:*** Angle of screed, controlled by operator, automatically carries material uphill and compacts it solidly against the top form.

4. ***Eliminates or greatly reduces carry-back, saving one to two shovelers' wages.***

5. ***Finishes faster without tearing, saves extra passes:*** Diagonal screed works final roll of material at an angle, a real advantage when finishing stiff mixes.

6. ***Capacity to match biggest pavers:*** Fast and flexible, with a wide range of screed speeds *all independent of traction,* finisher easily keeps pace with dual drum paver output on half-width or full-width work.

labor-saving mass production

Jaeger AIR PLUS Compressors help you do more work for wages paid . . .

Watch your production gain in yards of pavement broken, footage drilled, job progress made when you put a new AIR PLUS behind your tools. Delivers more and cooler air for every pound of fuel, maintains the steady 90 to 100 lbs. pressure that you need to keep tools working at their top efficiency and speed.

Compressors and engines are built to the same micro-precision standards. Valves are 75% to 100% larger for free air flow and "ultra lapped" to leakproof closure. Patented "Fuel Miser" control saves up to 32% of fuel. Engineered thruout to insure a dependable source of air, kept at "new machine" efficiency by service stations in 130 cities.

Sizes 60 to 600 cu. ft., trailer, truck, tractor or skid mounted.

SURE PRIME — the only pumps with protected performance

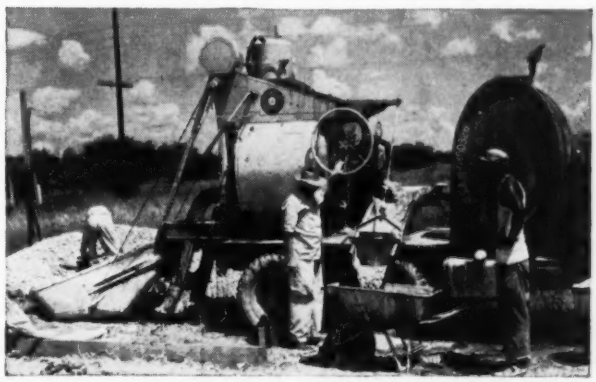
Extra-powered, conservatively rated and sure-primed by two separate, simultaneous actions, a Jaeger is a more efficient pump to start with. Overall enclosures, exclusive with Jaeger, protect that efficiency with a dry, quick-starting, smooth running engine in all weather. Close-grained shell castings designed for high pressures, long-life Lubri-Seal, always accessible for inspection, and replaceable liners or seal rings mean extra years of low-cost service from any Jaeger pump.

Dewatering pumps from 1½" to 10", capacities to 240,000 gph; small, portable pressure pumps, diaphragm pumps, self-priming jetting pumps up to 250 lbs. pressure.

SPEEDLINE Mixers pour it faster

You can produce bigger daily yardage with the same size crew when you put a Jaeger on the mixing job. No other outfit has the Jaeger automatic "Skip Shaker" loader, criss-cross "dual mixing" action and fast "pressure" discharge of stiff concrete. There's extra advantage, too, in Jaeger's automotive type transmission, high carbon machined steel drum tracks and oversize engines protectively enclosed. They mean lower upkeep and insurance against breakdowns that no "light-weight" mixers can provide.

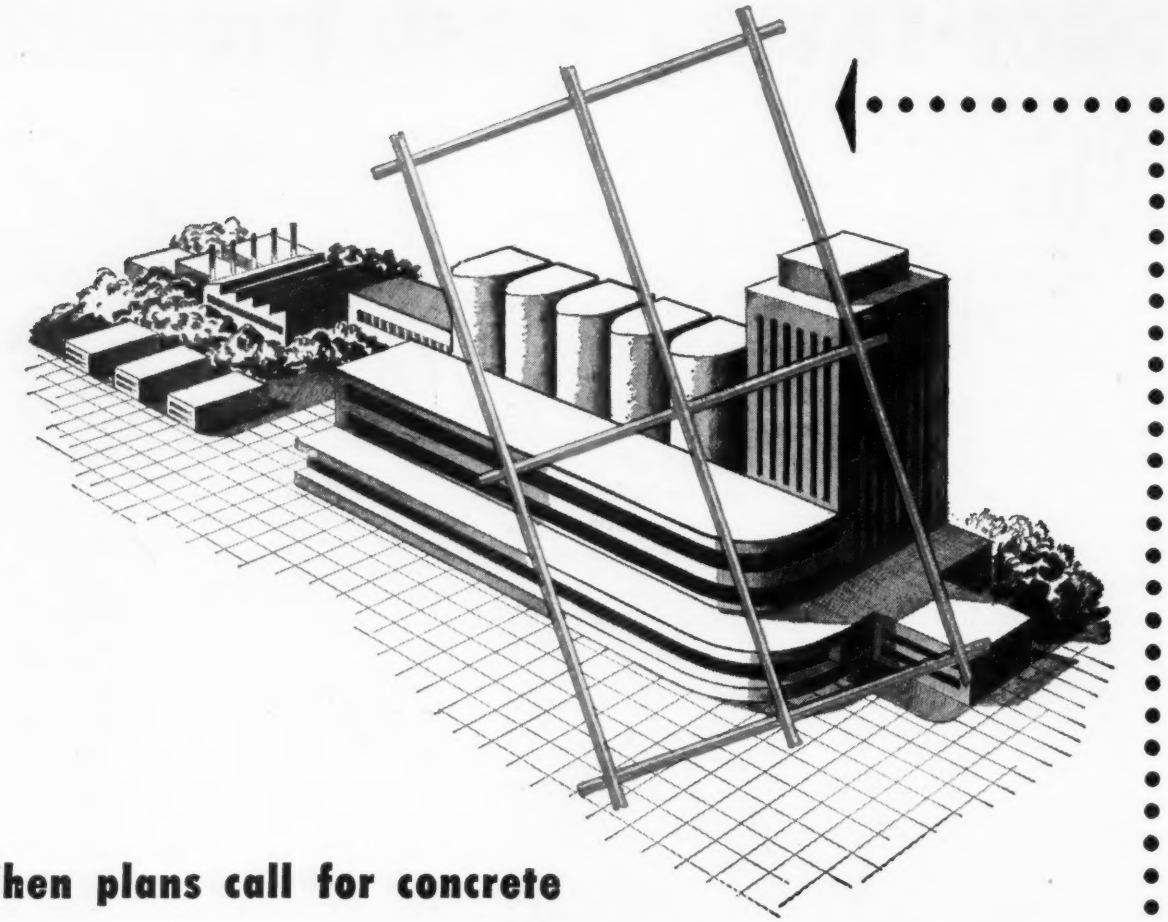
3½ to 16S sizes trail on Timken bearing wheels and springs. Also plaster-mortar mixers and portable cold-patch mixers.



Sold, rented, serviced in 130 cities of U. S. and Canada. See your Jaeger distributor or send for latest Catalogs on above equipment, also 1948 model Bituminous Pavers, Hoists and Towers.

THE JAEGER MACHINE CO., Columbus 16, Ohio

REGIONAL OFFICES: 1504 Widener Bldg., Philadelphia 7, Pa. • 226 N. La Salle St., Chicago 1, Ill. • 235 American Life Bldg., Birmingham 1, Ala.



When plans call for concrete

Specify American Welded Wire Reinforcement...

● Architects and construction engineers have helped make American Welded Wire Fabric the world's most widely used reinforcement for concrete.

Closely and accurately spaced, the many high tensile strength steel members of American Welded Wire Fabric fortify all concrete construction against stresses, strains, and impact in all directions.

American Welded Wire Fabric comes to the job in rolls or flat sheets. Both are easily handled, lie flat and stay in place.

For lighter, stronger concrete construction, specify U·S·S American Welded Wire Fabric. It saves labor cost and construction time.

American Steel & Wire Company
Cleveland, Chicago and New York

COLUMBIA STEEL COMPANY, San Francisco,
Pacific Coast Distributors

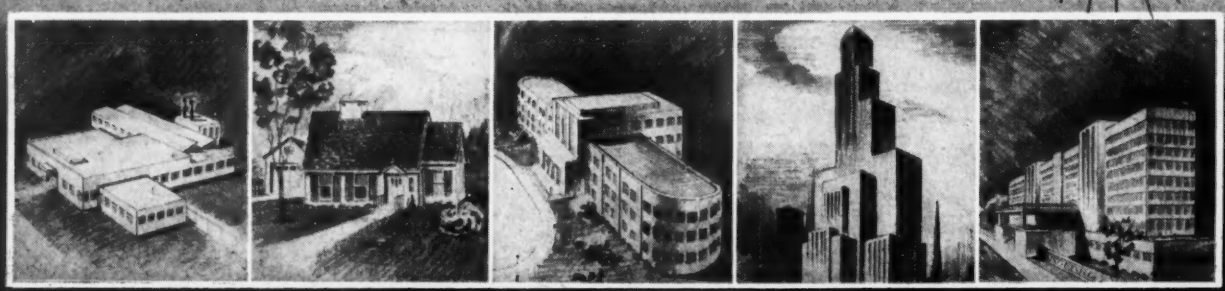
TENNESSEE COAL IRON & RAILROAD, Birmingham,
Southern Distributors

United States Steel Export Company

UNITED STATES STEEL

AMERICAN STEEL & WIRE COMPANY
USS
AMERICAN WELDED WIRE FABRIC
UNITED STATES STEEL

Every type of concrete construction needs American Welded Wire Fabric reinforcement.



FACTORIES SMALL HOMES SCHOOLS SKYSCRAPERS HOSPITALS

BANK ON BLACKHAWK

For *Latest Developments* in Hydraulic Jacks

HEAVY-DUTY SERIES
12, 20, 30, 50 and 100-ton capacities

Now — New, More-for-your-money Features Found Only in Blackhawks

In these startlingly different industrial jacks Blackhawk again proves its ability to create dramatically-new, dependable hydraulic equipment. The super-strong base is machined from a single piece of non-porous steel — release valves are recessed for protection — the pump beam is fully protected from damage — speed pump and load pump are combined in one unit — base is tapped for gauge equipment. These are a few of an exclusive combination of benefits that bring you jack performance never before known in Industry. When you need jacks —buy Blackhawks from your Blackhawk Industrial Supply Distributor.

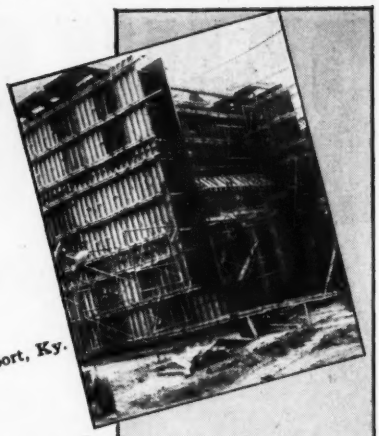
CROWN SERIES
3, 5 and 8-ton capacities

A Product of **BLACKHAWK MFG. CO., Dept. J2338, Milwaukee 1, Wis.**

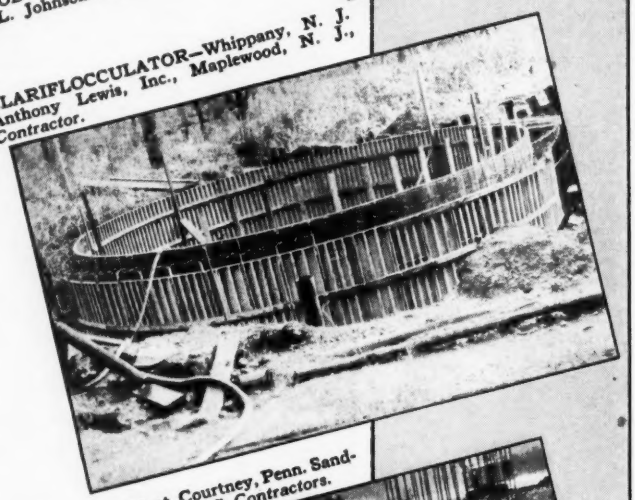
BLACKHAWK

The same ATLAS SPEED FORM UNITS DID *ALL* THESE JOBS . .

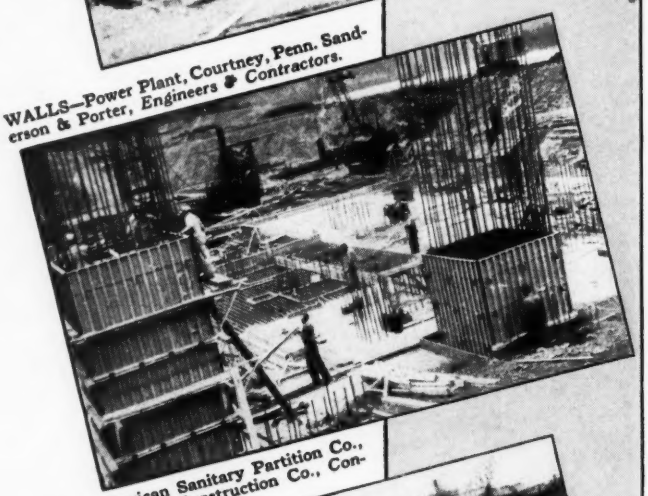
- WALLS
- FLOORS
- COLUMNS
- DAMS
- MANHOLES
- CIRCULAR TANKS



FLOOD WALL GATEWAY—Newport, Ky. W. L. Johnson Construction Co.



CLARIFLOCCULATOR—Whippany, N. J. Anthony Lewis, Inc., Maplewood, N. J., Contractor.



WALLS—Power Plant, Courtney, Penn. Sanderson & Porter, Engineers & Contractors.

FLOORS—American Sanitary Partition Co., L. I. City. Cardinal Construction Co., Contractors.

Here are only a few of many different types of jobs for which the same unit can be used. The flexibility of Atlas Speed Form units makes possible an infinite variety of combinations. The sturdiness of the form results in many re-uses, makes form costs almost nominal. The engineered design produces 25% to 50% labor savings.

Irvington gives complete service, can supply not only fabricated forms but advice, field supervision and any aid you may need to help you solve your form problems. Just mail the coupon.

Mail inquiries to Irvington Office.

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Broad St. Station Bldg.
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TACOMA, WASH.
2412 N. 10th Street
WASHINGTON, D.C.
805 G Street
NEW YORK, N.Y.
43 Cedar Street

So light a child can lift them

IRVINGTON FORM & TANK CORPORATION

IRVINGTON, 97 NEW YORK

Please send me information on Atlas forms. I am particularly interested in forms for Walls ☐ Floors ☐ Tunnels ☐ Bridges ☐ Sewers ☐ Columns ☐

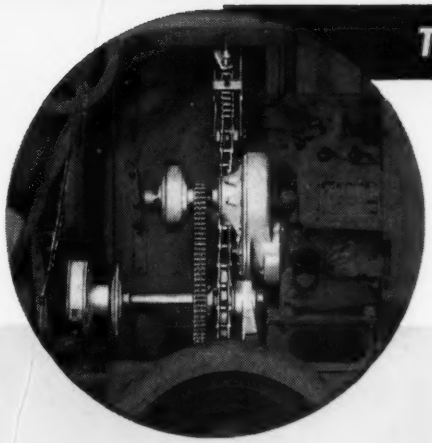
NAME.....

FIRM.....

ADDRESS.....

.....

THE CHAIN TAKES THE STRAIN

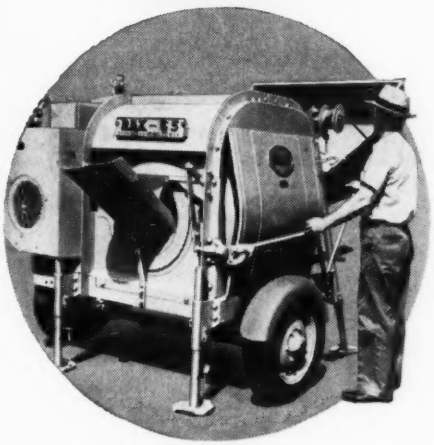


The exclusive Rex Chain Drum Drive eliminates stresses and strains. The chain protects the transmission . . . gears . . . shafting . . . power plant. It eliminates binding between drum and transmission during the mixing action. And since the chain transmits power in the "up" direction, the load on the drum rollers is materially reduced.

the Mixers that give you MOST!

Lower Maintenance and Operating Cost

The Rex Chain Drum Drive permits weight to be properly distributed throughout the mixer for extra long life. It eliminates the need for bulky, excessively heavy transmission cases, shafting, bearings, etc. The weight saved here permits us to build added wearing life into parts where it is needed most . . . blades, drum rollers, drum shell and drum supports without sacrificing extreme portability. A Rex Mixer just has to deliver the lowest operating and maintenance costs of any mixer.



The REX "Easy Arc" Controls

Rex Mixers are designed to turn out *more* batches per day with far less manual effort. Operator can handle all controls from one spot. All have ample leverage . . . swing through short, easy arcs for safe, convenient, easy operation. For example, the discharge chute . . . it's outside the drum while mixing, and the operator just gives the lever an easy push that swings the chute into the drum. He doesn't have to lift a chute-full of concrete as is the case on the ordinary chute that's inside the drum during mixing.

There are a lot of other important "Plus" advantages of Rex Mixers. For all the facts, see your Rex Distributor, or write for your copy of Bulletin No. 47-10. Chain Belt Company, 1664 West Bruce Street, Milwaukee 4, Wis.

CHAIN BELT REX COMPANY

CONSTRUCTION MACHINERY

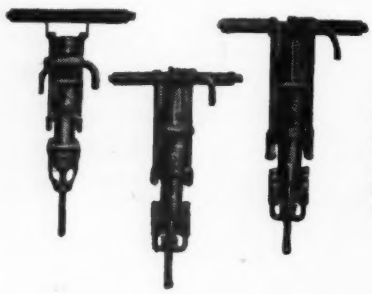
HERE'S THE *Quality* LINE

Gardner-Denver WHD-105 Portable Compressor

Gardner-Denver WHF-210 Portable Compressor

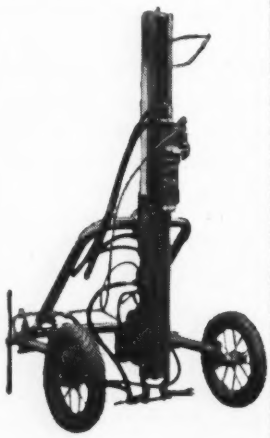
Gardner-Denver W8K-500 Portable Compressor

You're *sure* of an adequate and continuous supply of air when you specify Gardner-Denver Portable Two-stage Water-cooled Air Compressors. *Completely* "water-jacketed" for protection against overheating . . . cold "unlubricated" starts . . . high lubricating oil consumption, Gardner-Denver Portables give you the air you need in any climate or at any altitude. For further information about the complete line of Two-stage Water-cooled Air Compressors, ask for a demonstration or write Gardner-Denver Company, Quincy, Illinois.



No matter what the type of ground, there's a Gardner-Denver Sinker that is "right." Shown from left to right are the S33, the S45 and the S55—part of a complete line of Sinkers available for every need.

T23 Tamper. Balanced for smooth handling, this tamper easily walks over the fill. The plated and polished piston is easy on the front head packing — eliminates loss of power from air leakage. Integral oil reservoir assures complete lubrication.

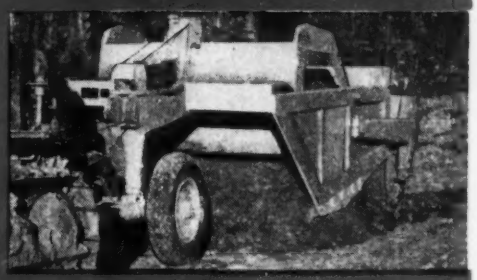


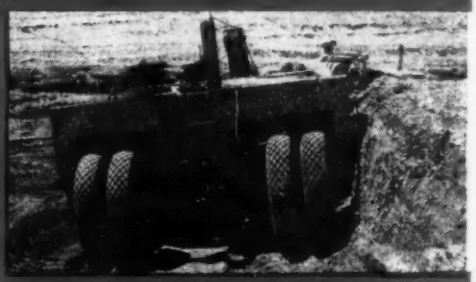
URM99 Wagon Drill. The *new*, faster drilling motor feed wagon drill. Designed for quicker, 6-foot steel changes; carries a 3½" to 4" bore derrick drill. 5-cylinder radial air motor operates motor feed.

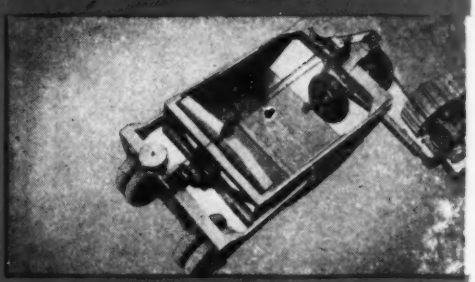
B87 Paving Breaker has an exclusive safety latch that works like the "safety" on a gun—prevents accidents before they start. Operator can move breaker safely from place to place without shutting off air.

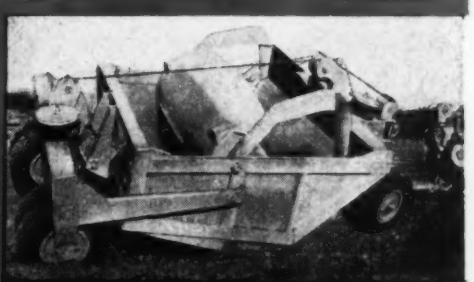
GARDNER-DENVER
SINCE 1859

SOUTHWEST *again resumes the exclusive production of* TYPE "S" 4-WHEEL SCRAPERS









THESE SOUTHWEST 4-WHEEL SCRAPERS are unequalled for economy and efficiency in fast, low-cost dirt moving. Check these outstanding features ● **FASTER, EASIER LOADING**—The "rear lift" method of control permits the bowl to lay flat when digging. The earth is "rolled into" the bowl instead of being forced "uphill". ● **POSITIVE, ROLLING EJECTION WITH LESS POWER**—assures accurate control of spreading depth from a thin layer to a single heap. ● **CUTS CLOSE TO BACKSLOPES, BUILDINGS AND RETAINING WALLS**—Cutting edge extends almost the entire width of the frame, permitting close, accurate cuts. ● **SHORT TURNING RADIUS AT FAST SPEEDS**—Even load distribution, low center of gravity and balanced weight provide extreme stability. ● **FINISHES SIDE SLOPES EASILY AND SAFELY**—There is no top-heavy superstructure to overbalance this scraper. It rides the slope as smoothly as on the level.

FOR DETAILED SPECIFICATIONS WRITE FOR BULLETIN CM-21

For the past eight years these scrapers have been manufactured and distributed under license from Southwest. From now on Type "S" 4-Wheel Scrapers will be manufactured and distributed under our own trade name, "SOUTHWEST". Hundreds of these scrapers are in use throughout the world—their reputation for efficient, dependable performance is well known.

CONSTRUCTION MACHINERY DIVISION

Southwest Welding & Manufacturing Co.

ALHAMBRA, CALIFORNIA

The job

Producing 1,100,000 tons of aggregates

The equipment

A Cedarapids Master Tandem

Cedarapids Built by IOWA

The contractor

Morrison-Knudsen Company Inc., Boise, Idaho

THE M-K symbol and the Cedarapids trade-mark on the equipment producing aggregates for so many of the largest and toughest construction jobs all over the world have long been familiar sights.

For example, a Cedarapids Master Tandem has produced 1,100,000 tons of aggregates for nine different M-K jobs, some of them hundreds of miles apart. 213,400 tons of concrete aggregates, 132,200 tons of plant-mix aggregates, 746,000 tons of base material for pavement and 8,400 tons of miscellaneous material is the record accumulated by this one machine. This combination of portability, high capacity, flexibility and long, dependable service has helped Morrison-Knudsen complete their contracts on time.

When you buy aggregate producing equipment, follow the lead of contractors who know construction equipment best — buy Cedarapids.

Iowa Manufacturing Company
Cedar Rapids, Iowa, U. S. A.

THE IOWA LINE *of Material Handling Equipment Includes*

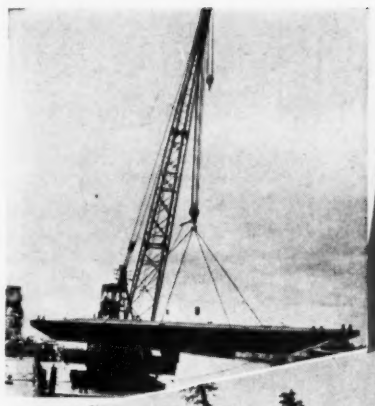
PRODUCT OF IOWA

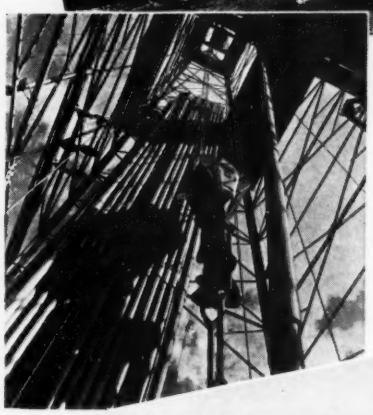
ROCK AND GRAVEL CRUSHERS
BELT CONVEYORS – STEEL BINS
BUCKET ELEVATORS
VIBRATOR AND REVOLVING SCREENS
FEEDERS

TRAPS
STRAIGHT LINE ROCK AND GRAVEL PLANTS
PORTABLE POWER CONVEYORS
PORTABLE STONE PLANTS
PORTABLE GRAVEL PLANTS

REDUCTION CRUSHERS
BATCH TYPE ASPHALT PLANTS
DRAG SCRAPER TANKS
WASHING PLANTS
TRACTOR-CRUSHER PLANTS

STEEL TRUCKS AND TRAILERS
KUBIT IMPACT BREAKERS





"HERCULES"* (RED STRAND) the DEPENDABLE WIRE ROPE for any TOUGH JOB

* REG. U.S. PAT. OFF.

Wherever or for what purpose Wire Rope is used... regardless of the industry or place... there is a type and construction of "HERCULES" (Red Strand) suited to meet *any* and *every* heavy duty demand—*no matter how tough the job.*

Since 1886 the "Red Strand" has identified a wire rope that has—day in and day out—proved its dependability.

"HERCULES" (Red Strand) Wire Rope is made in Round Strand and Flattened Strand constructions—Preformed or Non-Preformed.

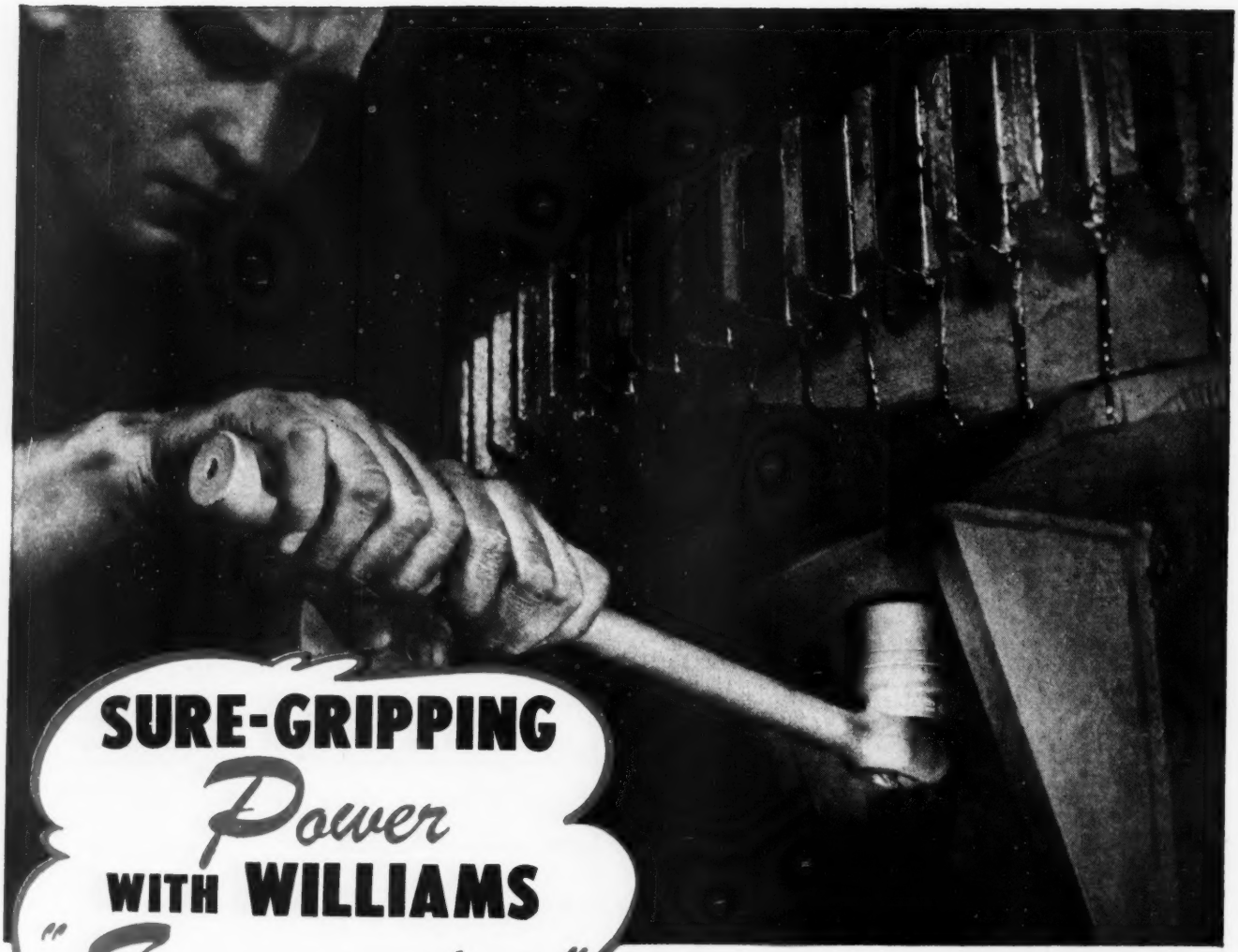
Consult our Engineering Department at any time for specific recommendations to fit your particular need.

A. LESCHEN & SONS ROPE CO.

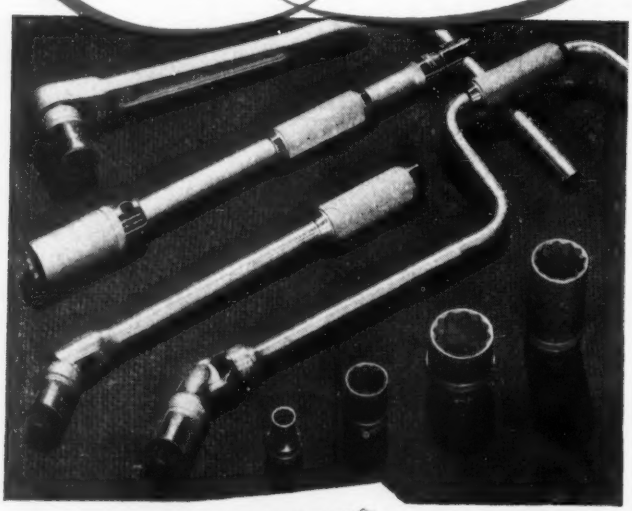
ESTABLISHED 1857

5909 KENNERLY AVENUE • ST. LOUIS 12, MISSOURI

NEW YORK 6 CHICAGO 7 DENVER 2 SAN FRANCISCO 7 PORTLAND 9 SEATTLE 4



SURE-GRIPPING *Power* WITH WILLIAMS *"Supersockets"*



● For the extra *safety* and the extra *power* that's possible only with a sure-gripping wrench . . . pick a Williams "Supersocket." And there are many other advantages to be found in these versatile wrenches . . . greater speed, extreme adaptability, less fatigue are but a few.

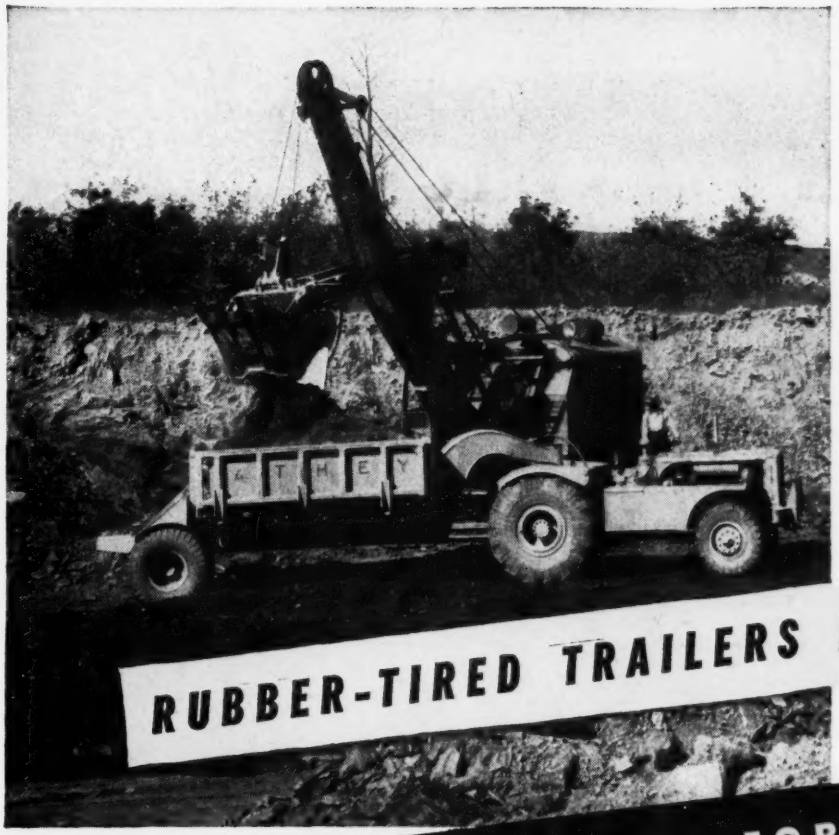
Williams "Supersockets" are available in 5 different patterns, having various handles, parts and socket types, with drives ranging from 1/4" to 1" square. Socket openings from 3/16" to 3-1/8".

WILLIAMS

• OUR DISTRIBUTOR IS YOUR LOCAL WAREHOUSE

OPEN END, BOX, ADJUSTABLE & RATCHET WRENCHES; DETACHABLE SOCKETS & SETS; IMPACT SOCKETS; TOOL HOLDERS; LATHE DOGS; "C" CLAMPS; CHAIN PIPE TONGS & VISES; FLANGE JACKS; PLIERS; SCREWDRIVERS; PUNCHES & CHISELS; SOFT FACED "NUPLAFLEX" TIPPED HAMMERS; HOIST HOOKS; EYE BOLTS; ROD ENDS; CRANK & BALANCE HANDLES; THUMB SCREWS & NUTS

J. H. WILLIAMS & CO., BUFFALO 7, N. Y. *Distributors Everywhere*



Dumping to either side, the speedy Athey PD-10 Rubber-Tired Trailer cuts cycle time. It dumps over the side of the fill with no turning or backing and frequently without stopping. Greater production . . . greater profits! On highway construction or other earthmoving operations, Athey PD-10 and "Caterpillar" DW-10 units have proved to be the fast moving, cost cutting answer for the long hauls.

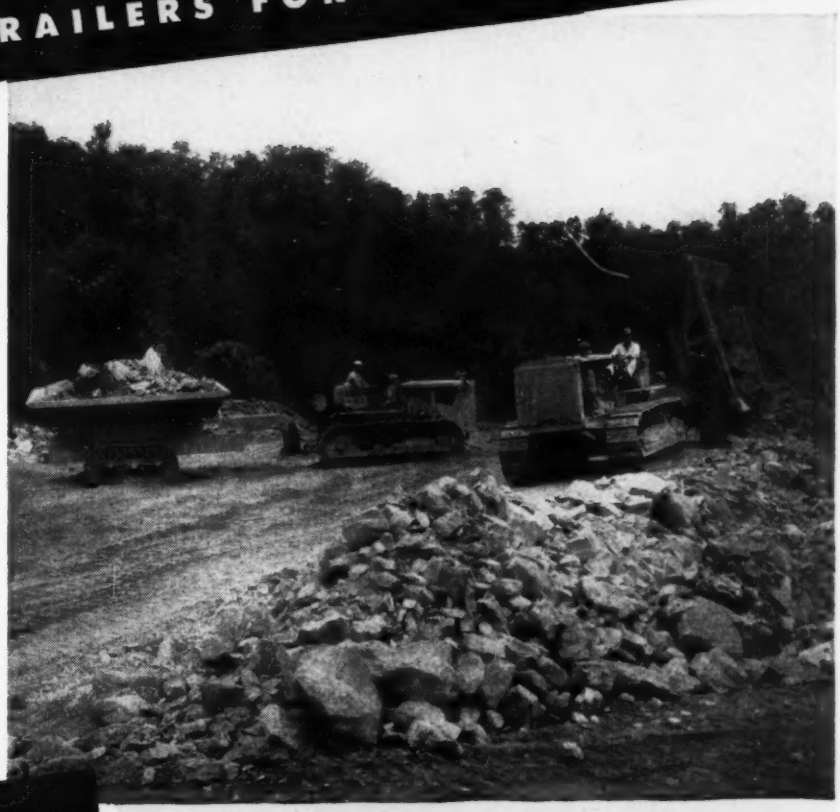
RUBBER-TIRED TRAILERS FOR LONG HAULS!

FORGED-TRAK TRAILERS FOR ROUGH GOING!

When the going's tough . . . mucky, soft, hilly or rocky . . . keep big loads moving with Athey Forged-Trak Trailers. Rolling on broad-footed Athey Forged-Trak Wheels, heavily loaded trailers pass over terrain that is impassible to other units. No delays in bogging down . . . no cutting of tires on jagged rocks . . . just production! Consult your Athey-"Caterpillar" Dealer in choosing the right equipment or write direct to . . .

Athey Products Corporation,
Dept. 38,
5631 West 65th St.,
Chicago 38, Ill.

Athey APCOR Products



Athey

ATHEY PRODUCTS CORPORATION, CHICAGO 38, ILL.

Dependable Hauling and Loading Equipment

P&H Single Pass Soil Stabilizer

PROCESSING 3,000 LINEAR FEET PER DAY

Cuts the cost of road building!

Here in Mississippi, as in many other states, the P&H Single Pass Soil Stabilizer is setting up new standards for producing good, all-weather roads more quickly and at lower cost.

This 10½ mile stretch of road, 22 feet wide and processed to a depth of 6 inches, was completed in only 21 working days.

Accurate control of all elements such as uniform processing depth, thorough pulverization, accurate proportioning and blending, including liquid, etc., made it possible to meet specifications exactly and produce a road of predetermined load carrying capacity.

HERE ARE THE FACTS:

Location of project—Highway 19, Lauderdale County, Mississippi — from Alabama line to Vimville.
Length of project — 10.48 miles.
Width of roadway — 22 feet.
Depth of treatment — 6 inches, compacted.

Type of soil — Natural soil of A-2 Classification with PI 5 or less and Clay having PI of 19 combined with sand to produce material of A-2 Classification.

Stabilizing agent — Asphalt — R.C.2 (4.32 gallons per square yard equal to 7% by weight of dry soil).

Local Traffic was maintained during construction.

The P&H Single Pass Stabilizer is capable of handling any type of admixture. If you are considering the construction of base courses, secondary roads, airport runways, etc., investigate the performance of the P&H Stabilizer under conditions similar to your own. Write us for facts.

P&H

SINGLE PASS STABILIZERS
4494 West National Avenue
Milwaukee 14, Wis.

HARNISCHFEGER CORPORATION
EXCAVATORS · ELECTRIC CRANES · ARC WELDERS · HOISTS · WELDING ELECTRODES · MOTORS

NORTH • EAST • SOUTH • WEST • IT'S SCHRAMM!

so versatile, so easy to operate, so economical . . .

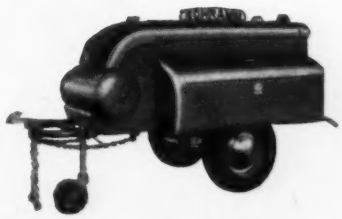
IT PAYS TO USE SCHRAMM!

VERSATILE . . . because Schramm can furnish air for any compressed air job in your work; and versatile because there is a size and model Schramm to fit your individual needs!

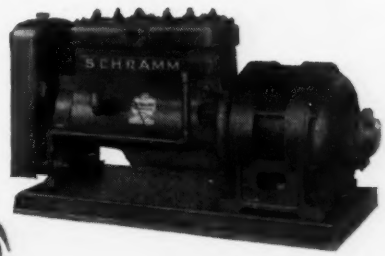
EASY TO OPERATE . . . merely by pushing a button to start, and compact and lightweight enabling you to move the portable units wherever you like! Meanwhile, the stationary units take up very little room, are vibrationless and no trouble!

ECONOMICAL . . . because Schramm can do *all* your compressed air jobs quickly and efficiently. Features that assure economy include 100% water cooled, forced feed lubrication, and mechanical intake valve.

Your field has found that Schramm Air Compressors well fit its needs. And has specified Schramm everywhere . . . North, East, South and West. Write today for full data.



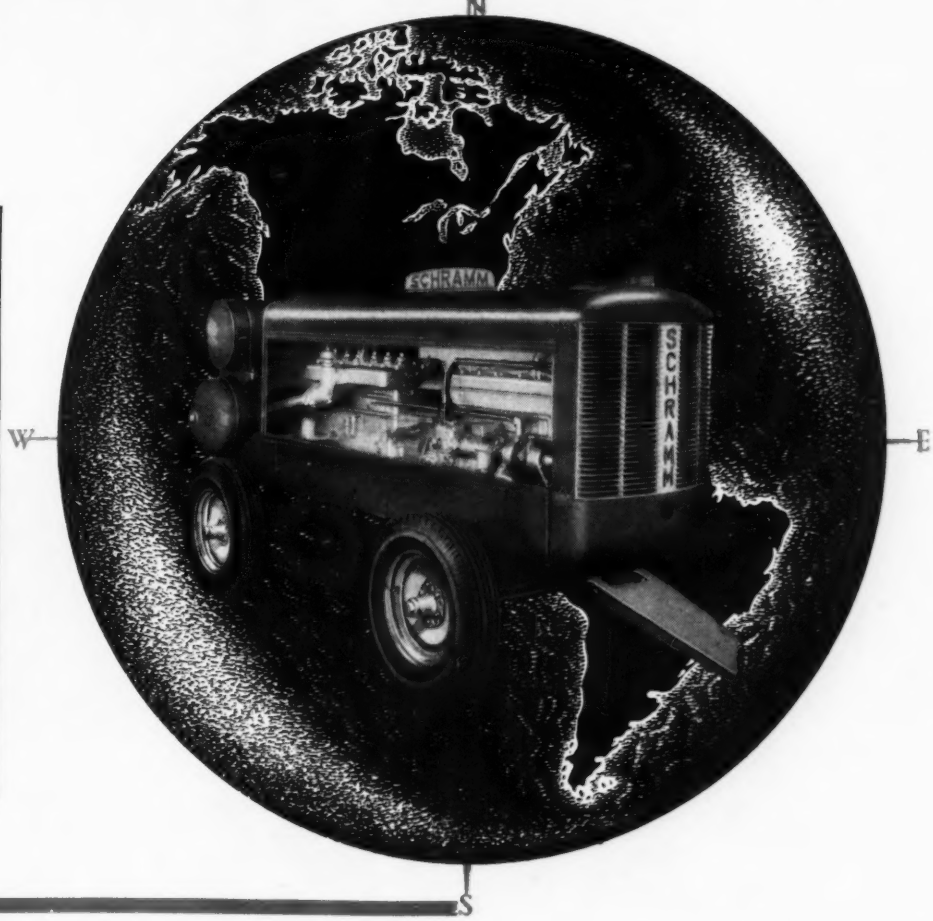
PORTABLE



STATIONARY

SCHRAMM INC.

THE COMPRESSOR PEOPLE
WEST CHESTER
PENNSYLVANIA



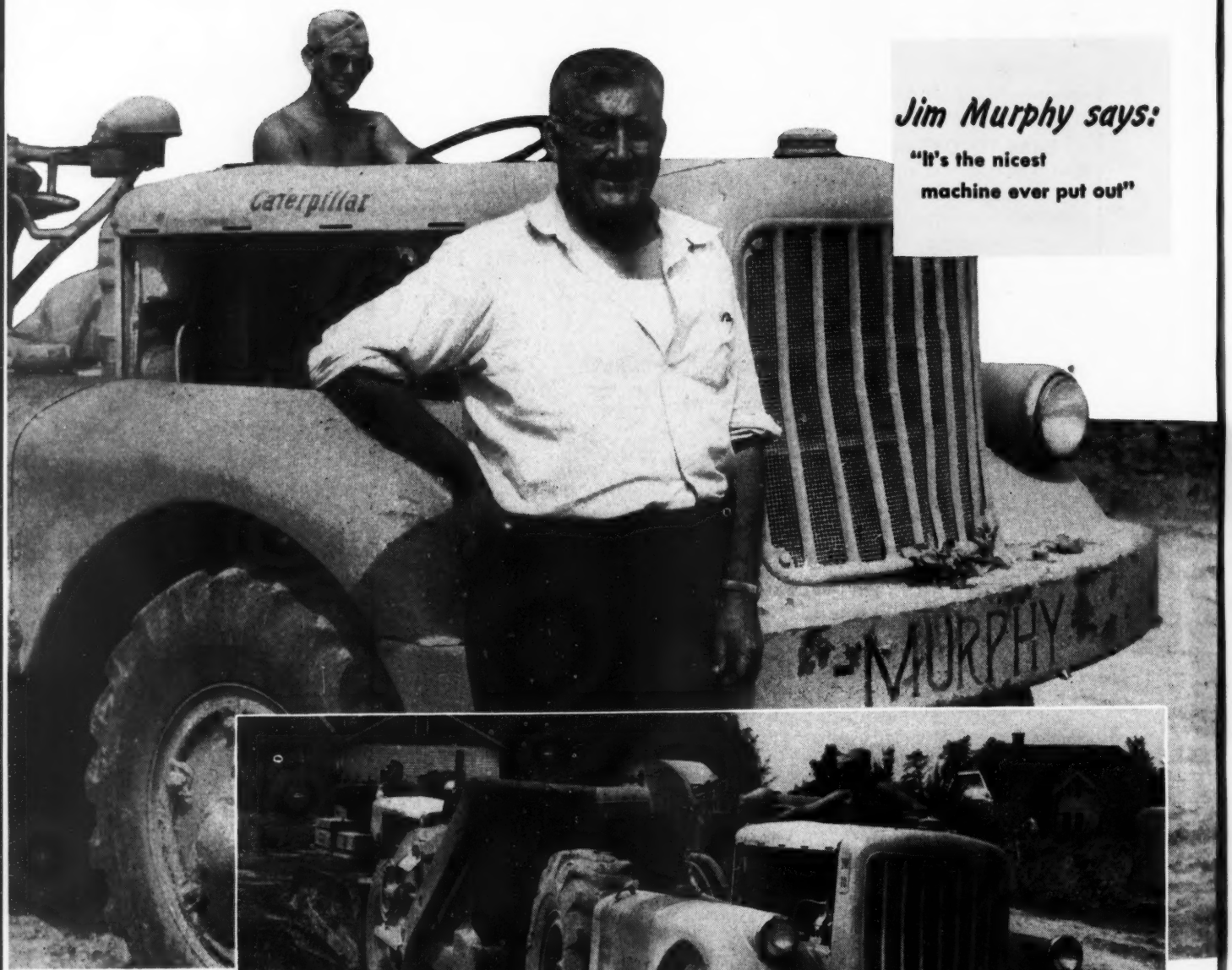
TOOLS *for the* JOB

Schramm Inc. also has a complete line of Pneumatic Tools to offer and recommend for operation by their Compressors.

These include Rock Drills, Paving Breakers, Trench Diggers, Clay Spades, Backfill Tampers, Tie Tampers, Sheeting Drivers, Demolition Tools, Chain and Circular Saws.

Write for bulletins and prices.

Another boost for



Jim Murphy says:

"It's the nicest machine ever put out"

Jim Murphy says:

"It gives us all the speed we want"

CATERPILLAR

REG. U. S. PAT. OFF.

Zoned Equipment

The "Caterpillar" Diesel track-type Tractor for bulldozing and scraper loading, plus the "Caterpillar" Diesel wheel-type Tractor for fast work on the longer hauls. . . . There you have the key units of the *zoned equipment* set-up that's behind the enthusiastic comments of the head of James Murphy & Sons, Cleveland contractors.

Mr. Murphy has had long acquaintance with the fine performance and dependability of "Caterpillar" track-type Tractors, but he also finds that the more recently acquired DW10 (wheel type) is making equally fine records on the kind of work for which it is primarily designed.

Zoned equipment (assigning exactly the right type of unit to each division of an earthmoving project) has so many advantages for completing contracts more efficiently, quickly and profitably that contractors everywhere are re-balancing their equipment toward those ends. Let your "Caterpillar" dealer help you analyze your needs for the projects you've signed up or have in prospect.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

BUILDING PROJECT— In cutting down a corner for a gas station and using the spoil for fill on a chain-store construction job in another location, the DW10 Tractor and Scraper shown on the opposite page averaged 3½ minutes per round trip (load, carry, dump and return) on a 1000-ft. haul. Three D7 Tractors, a DW10 Tractor, a No. 70 Scraper, a No. 7S Bulldozer, and a D4600 Engine in shovel, make up the James Murphy & Sons' team of "Caterpillar" matched equipment.

Jim Murphy says:

"Watch the big loads —you can hardly add another ounce of dirt"

DIESEL

ENGINES • TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

FAST ACTION UP FRONT!

YES — You get plenty of fast action when TRAXCAVATORS are on the job—digging, grading, stripping, bulldozing or any other of the many material moving and handling jobs that they do so well. And fast action is important —because it means more material handled in less time and *at greater profit.*

TRAXCAVATORS are expressly built to do fast, tough digging at rock-bottom costs! Mounted on big, powerful, sure-footed "Caterpillar" track-type tractors, they give you a combination that gets more work done in less time and for less money than any other machines of comparable size and capacity.

Investigate TRAXCAVATORS—find out how their direct, powerful digging action and high mobility can help you in your work. Your nearest TRACKSON-"Caterpillar" dealer will be glad to show you how TRAXCAVATORS are used for all kinds of earth-moving and material-handling jobs . . . road and street building and maintenance, pit and quarry work, stockpiling, snow-removal, and hundreds of other similar jobs. It will pay you to see him today or write direct to TRACKSON COMPANY, Dept. CM-38, Milwaukee 1, Wisconsin.

TRAXCAVATOR

REG. U. S. PAT. OFF.

The Original Tractor Excavator

Move more... pour more... faster... this NEW way

The BELL Prime-Mover*

NEW in profit-earning power equipment, the BELL *Prime-Mover* gives one man the materials-handling capacity of a husky crew of four.

The *Prime-Mover* hauls and pours wet concrete mix in big 10-cubic-foot loads...with sideboards it handles up to 18 cubic feet of lighter materials. Loaded high — wet or dry — a *Prime-Mover* climbs 20% grades, turns in less space than a hand barrow, clears 32" openings, and stops on a dime!

This power-driven, mechanically dumping bucket carrier takes on extra duties too. With blade attachment it becomes a baby bulldozer that doubles as a snow plow. Without use of tools, the bucket is quickly interchangeable with a half-ton platform body for staked or unstaked loads.

Prime-Movers are built for rugged service and low operating cost. The engine, transmission, and clutch run in oil, fully enclosed for protection against dust and moisture...no chains or belts. Any workman can operate it after 3 minutes' practice. Because there's less fatiguing drudgery, employee morale is better where *Prime-Movers* carry the loads — a valuable by-product of *increased individual productivity.*

Let the Prime-Mover eat up your profit-eating jobs!

SEND COUPON NOW

Bell Aircraft Corporation
P. O. Box 1C-3, Buffalo 5, N. Y.

Please send me engineering and cost data on the *Prime-Mover,* including operating experience in ..... (type of work).

Name.....

Company.....

Address.....

City, Zone & State.....

A PRODUCT OF BELL *Aircraft* CORPORATION

★PATENTS & T. M. REG. PENDING. COPYRIGHT, 1948

ON THE ROAD . . AND ON THE JOB

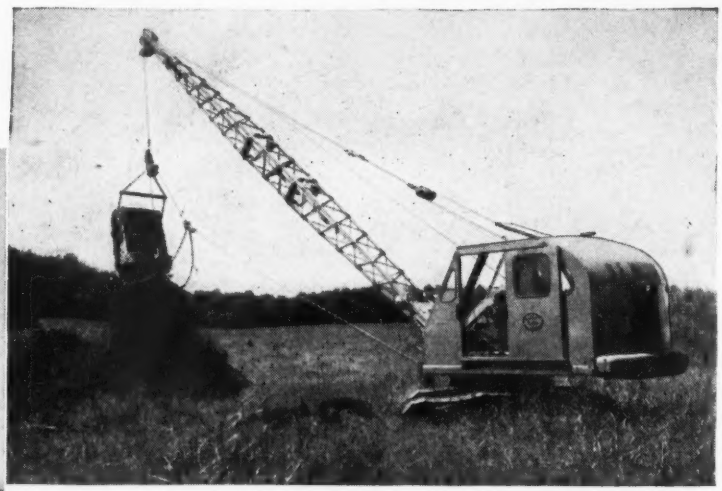
You'll be Out Ahead WITH MICHIGAN

MODEL T6K — ⅜ Yd., 6-Ton

Michigan rubber tired truck shovels are famous for speed on the road and on the job. Designed as a unit, with a heavy frame built for the job. Plenty of power gives you 30 mph road speeds. Easy operating air valves control air ram clutches for speedy crowding, hoisting and a 5.5 rpm swing that means extra yardage.

MODEL TMDT-16 — ½ Yd., 10-Ton

MODEL TLDT-20 — ½ Yd., 12-Ton



MODEL C-16 — ½ Yd., 8-Ton

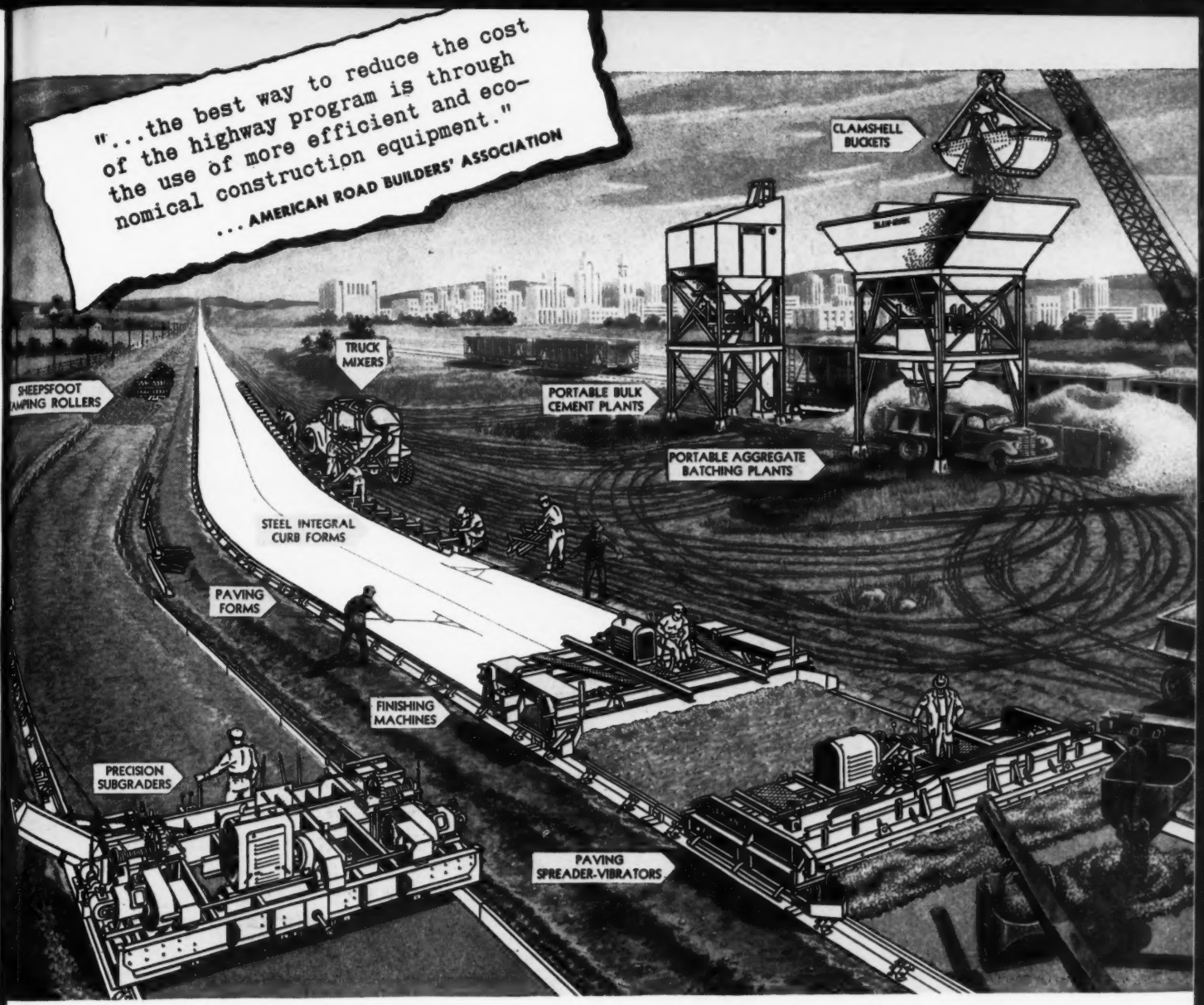
For those swampy jobs the model C-16 — balanced weight distribution — wide pads — low ground pressure — air controlled mechanism, travel and steering.

Get the complete details about the entire line of MICHIGAN Mobile SHOVELS-CRANES.

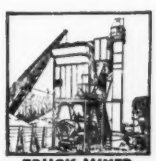
MICHIGAN

MICHIGAN POWER SHOVEL COMPANY

495 SECOND STREET • BENTON HARBOR, MICHIGAN


"...the best way to reduce the cost of the highway program is through the use of more efficient and economical construction equipment."
...AMERICAN ROAD BUILDERS' ASSOCIATION
CLAMSHELL BUCKETS
TRUCK MIXERS
SHEEPSFOOT AMPING ROLLERS
PORTABLE BULK CEMENT PLANTS
PORTABLE AGGREGATE BATCHING PLANTS
STEEL INTEGRAL CURB FORMS
PAVING FORMS
FINISHING MACHINES
PRECISION SUBGRADERS
PAVING SPREADER-VIBRATORS

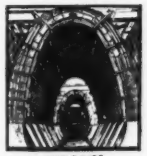
Contractors who have mechanized with BLAW-KNOX Construction Equipment agree with A.R.B.A.



TRUCK MIXER LOADING PLANTS

STEEL STREET FORMS

CONCRETE BUCKETS



HEAVY STEEL FORMS

Blaw-Knox has brought America's famous "mass production" methods to the construction of highways, airports, roads and streets. The tried and true machines and equipment illustrated make possible *better concrete paving, with the fewest men, at lowest cost, in the quickest time*... If performance like that interests you why not see the nearest Blaw-Knox distributor or write direct for complete data on the latest developments in Mechanized Paving.

BLAW-KNOX DIVISION of Blaw-Knox Company
2086 FARMERS BANK BUILDING, PITTSBURGH 22, PA.
NEW YORK • CHICAGO • PHILADELPHIA • BIRMINGHAM • WASHINGTON
Representatives in Principal Cities

BLAW-KNOX

Time and Labor Saving CONSTRUCTION EQUIPMENT

Sound, Solid Construction *from the Ground Up*

One look at a heavy duty GMC is all you need to see that here is a vehicle built to haul big truck loads and do real truck jobs. GMC heavy duties are sound and solid from the ground up . . . designed, engineered, and produced to provide powerful, dependable, long-lasting performance on toughest hauling assignments.

Frames are truck frames . . . deep and thick. Axles are truck axles . . . heavy and strong. Engines are truck engines . . . war-proved valve-in-heads. In every feature . . . in weight ratings from 19,000 to 90,000 pounds . . . GMC heavy duty trucks give you extra stamina and extra value for every dollar you invest. Get one for your job. Many models are now available for quick delivery.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

THE TRUCK OF VALUE

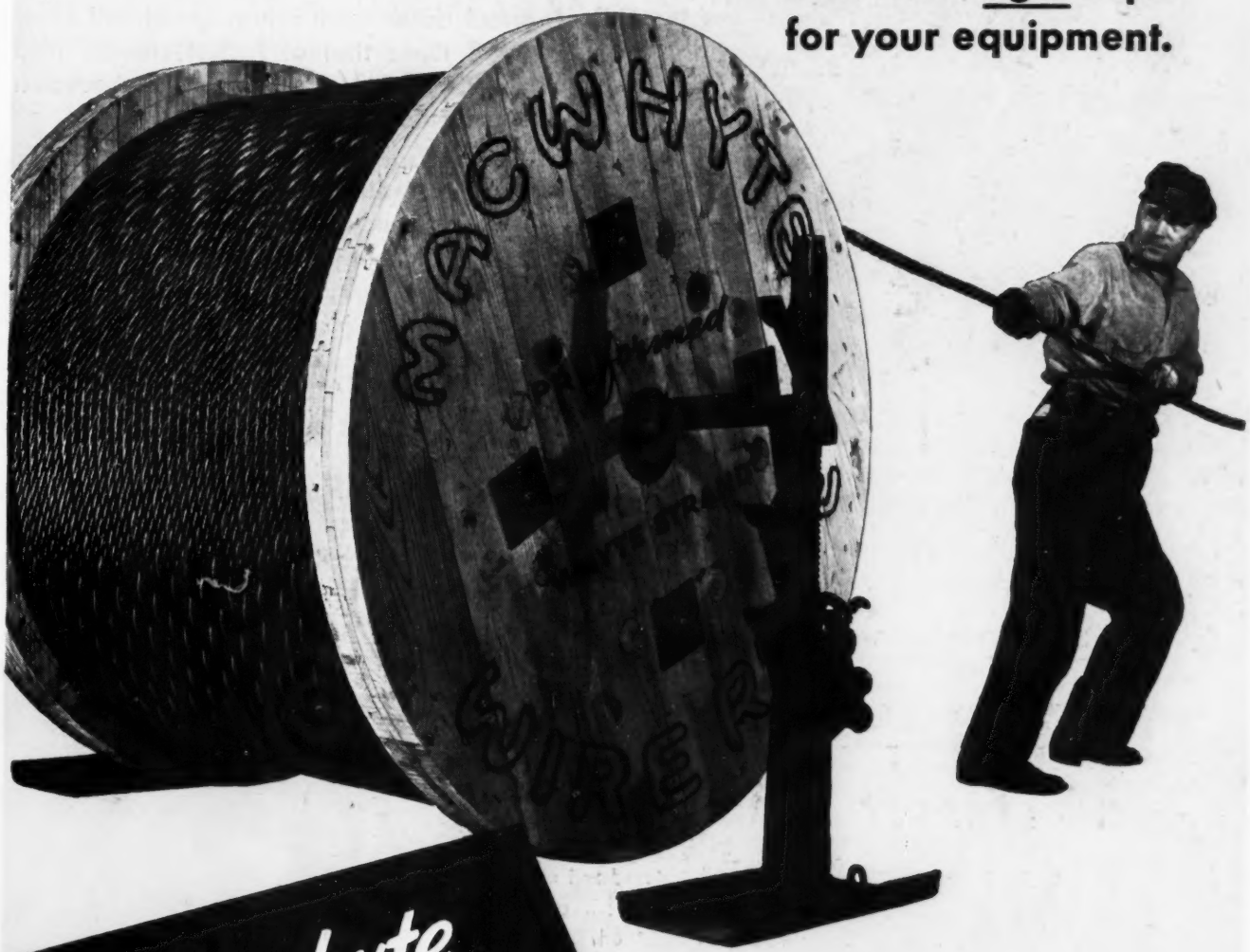
GASOLINE
• DIESEL

GMC TRUCKS

Help America Produce For Peace...Turn In Your Old Scrap Iron and Steel

a thousand and one job-proved wire ropes

There's a Macwhyte rope that's the right rope for your equipment.



Macwhyte Wire Rope

Use PREformed Whyte Strand for easy handling and longer service.

Macwhyte Distributors and Mill Depots—carry stocks for immediate delivery. Macwhyte representatives will recommend the correct rope for your equipment. Catalog on request.

MACWHYTE COMPANY

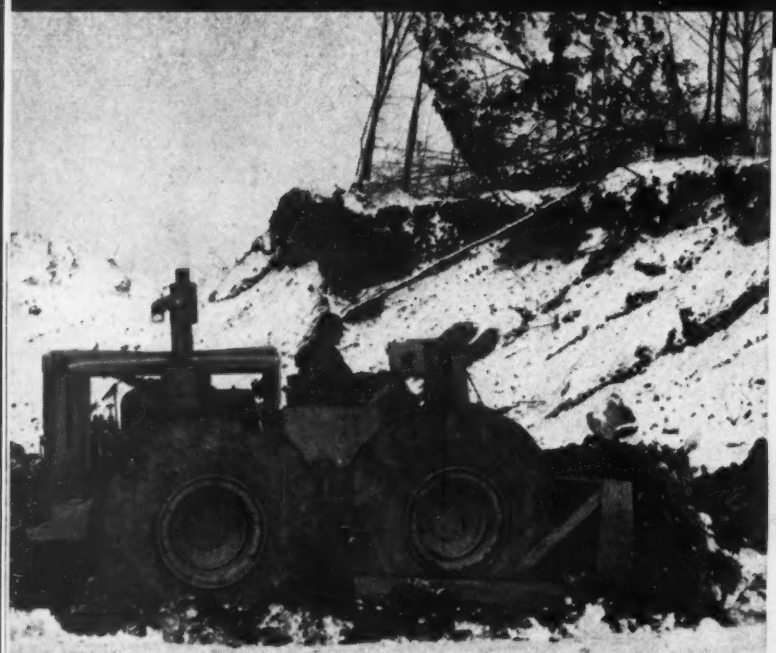
2941 Fourteenth Avenue • Kenosha, Wisconsin

Manufacturers of Internally Lubricated Wire Rope, Braided Wire Rope Slings, Aircraft Cables and Assemblies.

Mill Depots: New York • Pittsburgh • Chicago • Minneapolis Fort Worth • Portland • Seattle • San Francisco • Los Angeles

Distributors throughout U. S. A. and other countries.

Cut non-productive dozer time W



Tournadozer handles big loads . . . FAST . . . because of instantaneous gear selection, higher speed range, 4-wheel drive and powerful 180 h.p. Diesel engine. See it work . . . ***you can't believe it 'till you see it!***

1 Return Time Cut In Half

With Tournadozer the return half of the cycle is made at speeds up to 15 m.p.h. . . . on normal dozer work return speed will average 2 to 3 times that of fastest crawler tractor. This cuts time 1/2 to 2/3 from non-productive return cycle.

This major cut in return time, plus faster dozing speed, and elimination of lost time in gear shifting, means a major increase in dozer production. In addition, it considerably increases the effective range of economical dozer operation on many jobs.

2 Shift Delay Reduced

Tournadozer has no slow-down or stops for changing gears . . . Tournamatic constant-mesh transmission changes gear ratios instantly and in any sequence desired. Operator merely moves selector to desired speed and the Tournadozer moves RIGHT NOW!

On the job, big low pressure tires also mean that no planking is required for pavement crossing. You can go anywhere . . . curbs, cross tracks, anytime . . . and make fast job-to-job moves over highways.

Because of instantaneous shift, high speeds in reverse, and fast maneuverability, Tournadozer pushes more effectively . . . loads scraper faster . . . handles more scraper units than a slow-moving crawler-type tractor.

LE TOURNEAU LET EQUIPMENT

Don't wait . . . see your LeTourneau Distributor NOW for complete information. Get your order in early to insure prompt delivery.

me with TOURNADOZER

For every necessary shift in your present crawler-dozer cycle, ***Tournadozer gains up to 10 seconds (equivalent to 100' of travel on return cycle).*** It also works in higher gear ratios because of a "running" start . . . it gets out of trouble easier . . . it synchronizes better with scraper prime-mover in pusher service.

3 Save 50% on Job Move Time

Tournadozer goes anywhere on your job in a hurry. Top speed of 15 m.p.h. and giant rubber tires ***let you "run" where a tractor must "crawl".*** 1000' is only a minute away . . . a mile is a 5 or 6 minute run.

Frequently, in a day's work for any ordinary dozer, there are many 15 to 30-minute idle, waiting, non-productive intervals. This type of dozer production has become accepted as standard operation because of the crawler tractor's slow travel speed. Rubber-tired Tournadozers travel fast over same roads used by other high-speed hauling equipment . . . enable you to utilize time for productive-dozing that was otherwise lost with slow-moving crawlers.

With the Tournadozer you can travel 1000' . . . complete a 13-minute dozer job and return to your original assignment in 15 minutes. This speed and mobility permits handling more jobs per dozer . . . materially cuts on-job move time and idle stand-by time . . . eliminates non-productive dozer time.

4 Self-Powered Job-to-Job Moves

Big rubber tires permit you to drive Tournadozer job-to-job over pavement or cross country at 15 m.p.h. No truck, no trailer, no blocking needed. You save waiting for auxiliary hauling equipment, loading and unloading delay. Frequently Tournadozer can be working on the next job before you could get equipment assembled to start loading a crawler-type dozer.

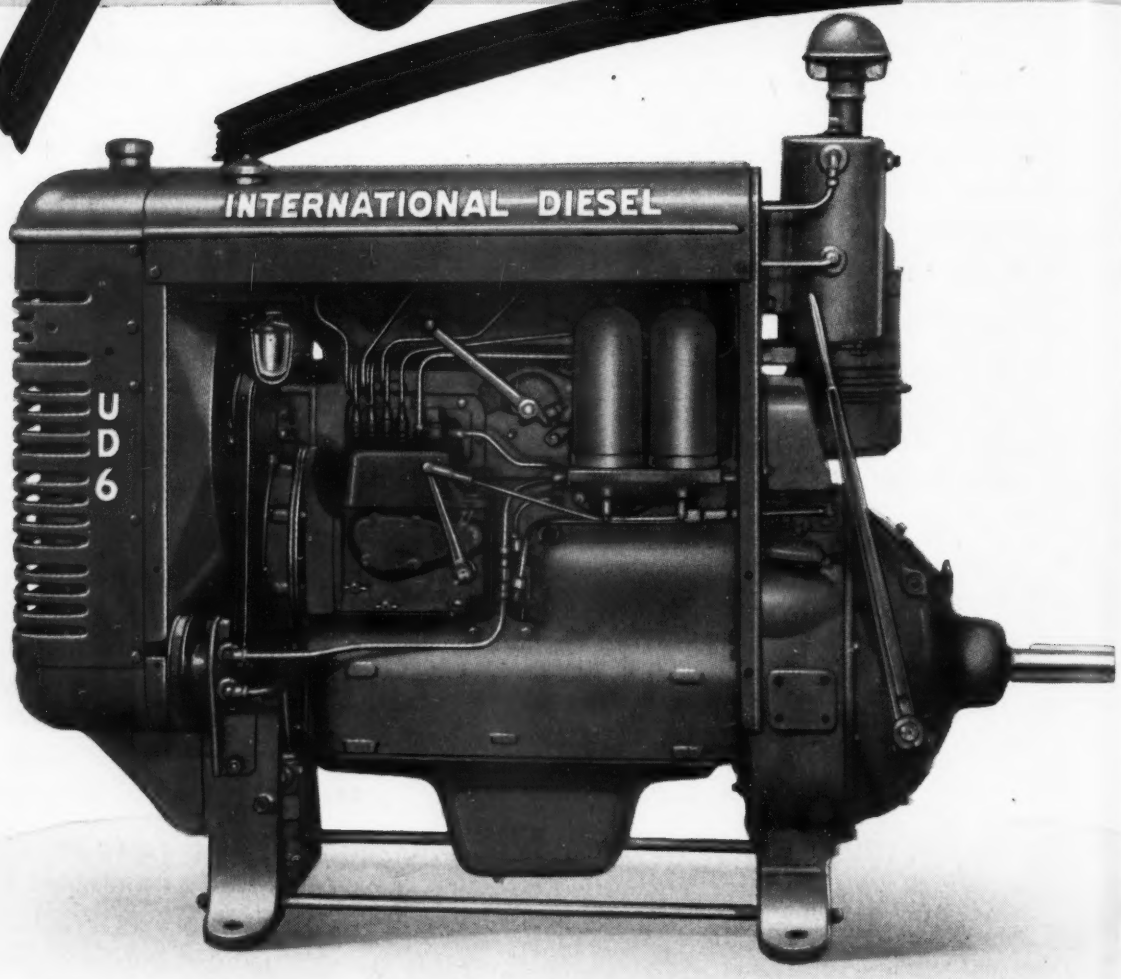
Tournadozer revolutionizes dozer applications. Be sure to get complete information before buying any other dozer. This is important to YOU!

Tournadozer, Tournamatic—Trademark R128

LE TOURNEAU HIGH-SPEED RUBBER-TIRED TOURNADOZERS

PEORIA, ILLINOIS

Power



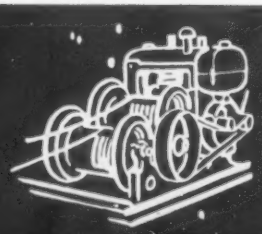
39 *working* Horsepower

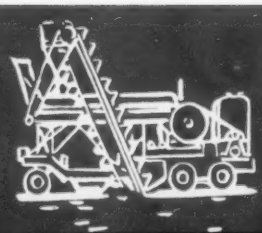
That's what the International UD-6 Diesel Power Unit, above, delivers at 1500 r.p.m. It has all the features which give Internationals superiority on any powering job! No other make of Diesel has them all. A self-contained starting system permits hand cranking or use of an optional 12-volt electric starter for easy starting regardless of weather.

The UD-6 is a smoothly operating, 4-cycle, valve-in-head engine with advanced design fuel injection; thermostatically controlled cooling; full-pressure lubrication; long-wearing, replaceable, file-hard cylinder liners; induction-hardened crankshaft; heavy-duty precision bearings; sensitive, variable-speed governor with torque control; renewable-element oil filters and a large capacity oil-bath air cleaner. Put it to work and it will give you faithful service for many years.

CRAWLER TRACTORS
POWER UNITS
DIESEL ENGINES
WHEEL TRACTORS

INTERNATIONAL





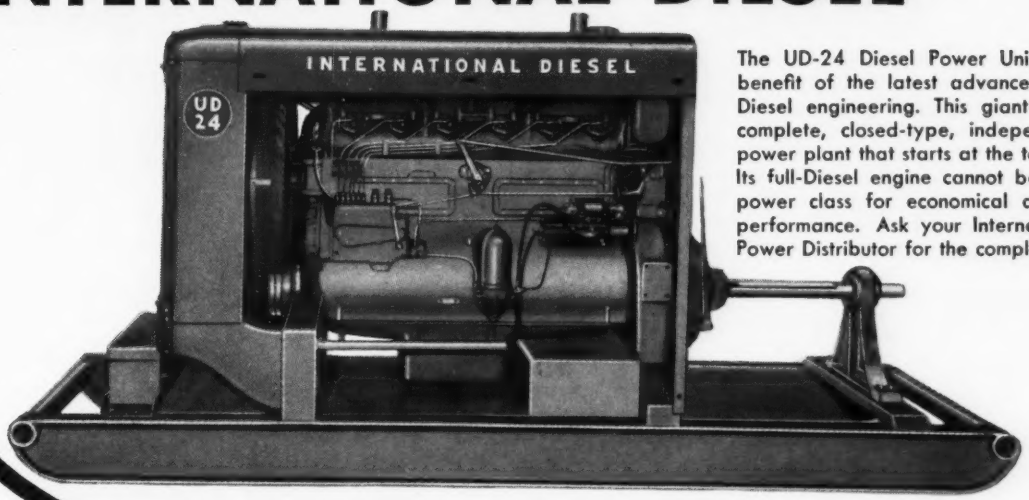
TO YOUR ORDER

INTERNATIONAL Engines and power units are available in a range of sizes that makes delivery of *POWER to Your Order* a simple matter! Simply choose from the International line of *four* carburetor-type and *six* Diesel power units. That's the way to be sure of getting the full rated horsepower, the matchless operating economy, the dependability and long service life which Internationals deliver. The horsepower range is from 22 to 55 H.P. for carburetor models and 39 to 180 H.P. for the Diesels.

Let your International Industrial Distributor help you select the power and equipment you need. He can show you why it's *good business* to standardize on Internationals.

Industrial Power Division **INTERNATIONAL HARVESTER COMPANY** 180 N. Michigan Ave., Chicago 1, Ill.

The NEW 180-Horsepower INTERNATIONAL DIESEL

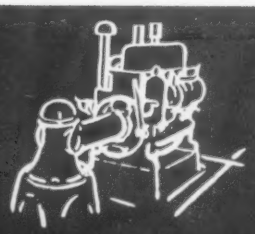


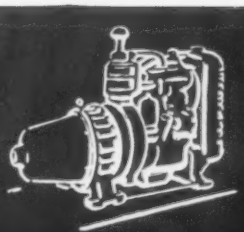
The UD-24 Diesel Power Unit gives you the benefit of the latest advance in International Diesel engineering. This giant of power is a complete, closed-type, independent, portable power plant that starts at the touch of a button. Its full-Diesel engine cannot be matched in its power class for economical and dependable performance. Ask your International Industrial Power Distributor for the complete story.

Delivers 180 H.P. at 1375 r.p.m.

INTERNATIONAL HARVESTER

Industrial Power





PMCO

High Speed Cutting Tools for Expensive Machines

All Purpose SHOVEL
PULLSHOVEL • DRAGLINE
CLAMSHELL

FRONTS, BOTTOMS, SCOOPS and TEETH shown in yellow on buckets are 14% manganese steel developing tensile strength up to 120,000 p.s.i. This high percentage manganese steel gives tough, rugged strength for hard service and allows wide set corner teeth for easy entrance in digging. Volume production methods enable us to build a better bucket with amazing economies in manufacturing.

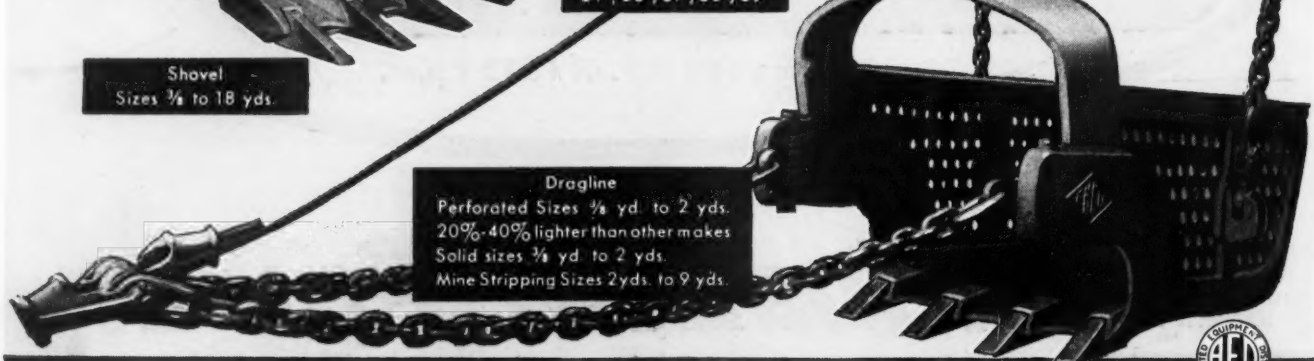
Experience Counts. **See your shovel man or equipment dealer about PMCO Buckets and Dippers.**

On the ½ yd. and ¾ yd. Shovel, Pullshovel and Dragline Buckets, all teeth are interchangeable— a great advantage to operators.

Clamshell
Sizes ⅜, ½, ⅝, ¾, 1 yd.

Shovel
Sizes ⅜ to 18 yds.

Pullshovel
Outside Cutter Widths: 21", 26", 31", 36", 39"



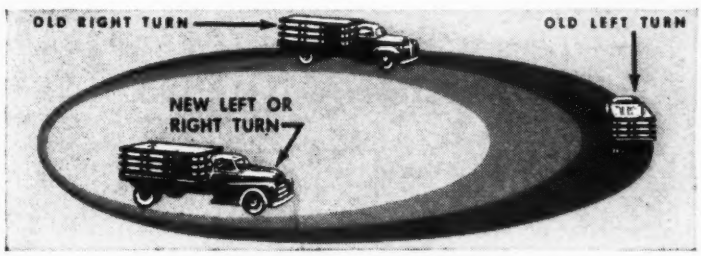
Dragline
Perforated Sizes ⅜ yd. to 2 yds.
20%-40% lighter than other makes
Solid sizes ⅜ yd. to 2 yds.
Mine Stripping Sizes 2yds. to 9 yds.

"Quality Since 1880"

PETTIBONE MULLIKEN CORP. CHICAGO 51, U. S. A.

WE OPERATE THE LARGEST AND MOST COMPLETE MANGANESE STEEL FOUNDRY IN THE UNITED STATES

ONLY DODGE OFFERS YOU ALL THESE NEW Truck Features

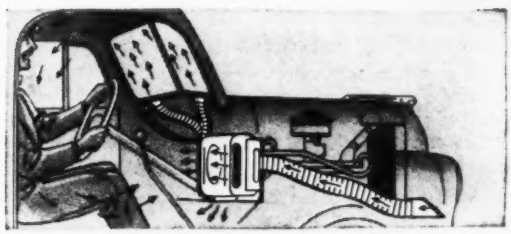


1. NEW ALL-WEATHER VENTILATION

Year-'round *comfort* is assured by a combination of fresh air intake, hot water *truck* heater, defroster tubes, vent windows, and cowl ventilator.

2. EASIER HANDLING BECAUSE OF NEW CHASSIS DESIGN

You can turn these new "*Job-Rated*" trucks in much smaller circles—and steering is much *easier*, too. This is due to a new type of steering, in combination with shorter wheelbases. Front axles have been moved back and engines forward, placing more of the engine and cab weight on the front axle. You get much better weight distribution.



3. MORE COMFORT FROM "AIR-O-RIDE" SEATS

New weight distribution, wider tread front axle, longer springs produce a marvelous new "cushioned ride." "Air-O-Ride" seats give a "soft," "firm," or "medium" seat. 7 full inches of seat adjustment.

4. IN ALL . . . 248 BASIC "*JOB-RATED*" MODELS

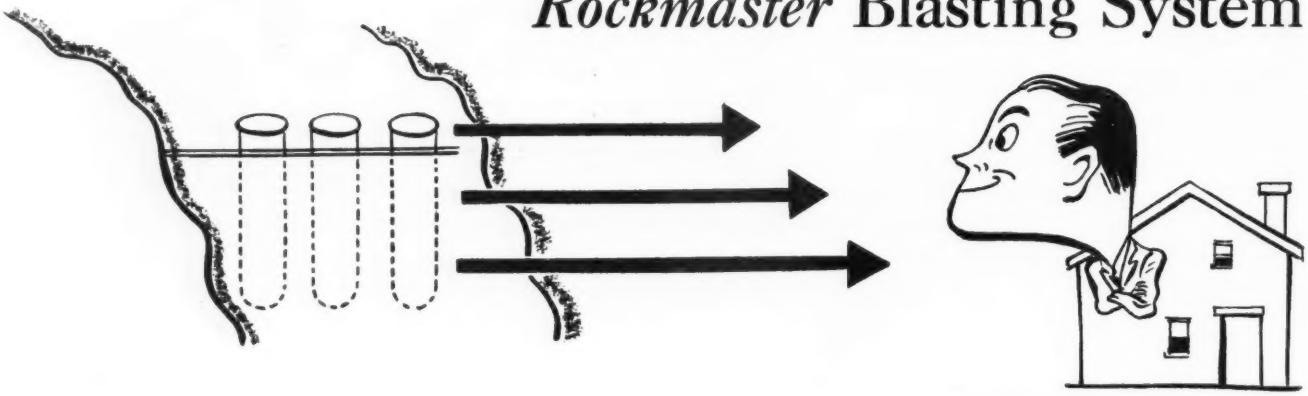
Every unit of every Dodge truck, from engine to rear axle, is "*Job-Rated*" for economy, performance, and long life. You save money with a truck that fits *your* job! 248 *different* basic chassis and body models, engineered for gross vehicle weights up to 23,000 pounds, and gross train weights up to 40,000 pounds.

NEW DODGE "Job-Rated" TRUCKS

...and only Dodge builds "Job-Rated" trucks!

Yesterday... by Ordinary Blasting Methods

Today ... by the *Rockmaster* Blasting System



"We shot over three times as many holes and received no complaints!"

A big limestone quarry received so many complaints about noise and vibration that they were forced to cut way down on the number of holes they could fire by standard methods. Costs per ton of rock went soaring.

Then they called in Rockmaster—and quickly found that with the Rockmaster system they could fire over three times as many holes with approximately four times as much dynamite without receiving complaints. And this is not an isolated case, by any means.

This fact alone is important to quarries, construction jobs and coal stripping operations, but there is more to it than the mere silencing of complaints. The Rockmaster system gives better fragmentation, far less "back-break" in quarries and less pulverizing of coal in strip pits. It frequently happens that the Rockmaster system permits a wider spacing of drill holes with a saving of drilling and explosives cost, too.

Call in the Atlas representative today. He will be glad to give you the benefit of Atlas pioneering in milli-second delay blasting.

ROCKMASTER GIVES YOU THE GREATER SAFETY OF MANASITE DETONATORS

Less Bark ... More Bite

"ROCKMASTER"—Trade Mark
Manasite: Reg. U. S. Pat. Off.

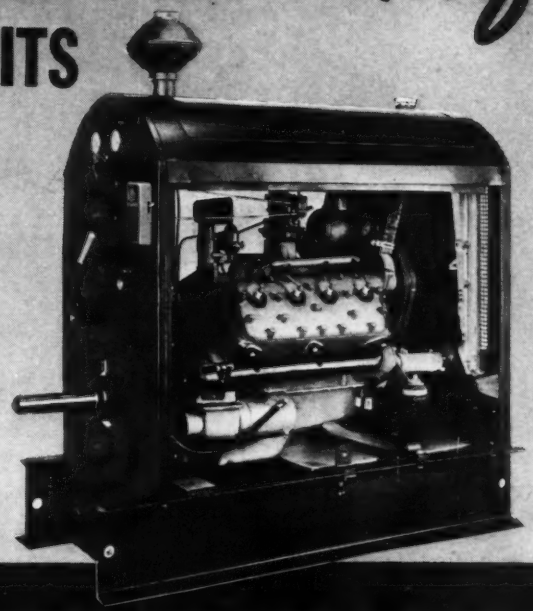
ATLAS EXPLOSIVES *"Everything for Blasting"*

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington 99, Del. • *Offices in principal cities* • *Cable Address—Atpowco*

Cut POWER COSTS in Half!

with KRW INDUSTRIAL POWER UNITS



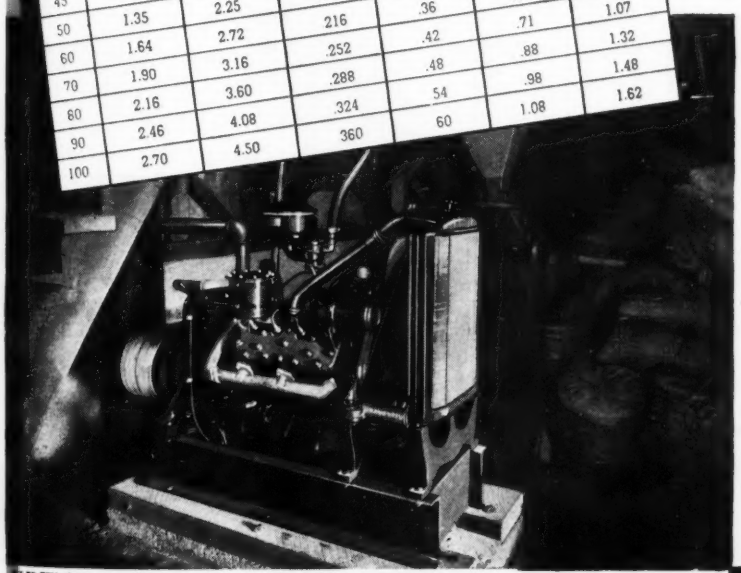
DRIVEN BY FAMOUS FORD V-8—100 H. P. TRUCK ENGINE—OPERATES ON GASOLINE, NATURAL GAS OR BUTANE . . . EFFECTS TREMENDOUS SAVINGS . . . EVERY FORD DEALER CAN SUPPLY SERVICE AND PARTS.

● Users everywhere . . . all kinds of power users . . . say without hesitation: "It's the finest and most dependable power plant ever built. It has cut our power costs in half." One reason owners are so enthusiastic is the fact that the heart of every KRW Industrial Power Unit is the great Ford 100 H. P. V-8 Truck Engine . . . blood brother to millions more in service around the world. Thus, every KRW user has available efficient, low-cost Ford Service as well as the Ford Engine and Parts Exchange Plan.

Combined with the V-8 power plant is the KRW 30-year tradition of quality manufacture; of close technical association with Ford, and Ford Dealers everywhere. KRW Conversion Parts are built right, of the right materials by modern precision methods. KRW Power Units operate on either gasoline, natural gas or any "bottled gas." KRW Industrial Power Units have been giving continuous, satisfactory, low-cost service for many years. See your Ford Dealer or mail the coupon.

OPERATING COSTS PER HOUR

Brake Horsepower	ELECTRIC MOTOR 80% EFFICIENCY Cost Per Kilowatt		KRW INDUSTRIAL UNIT OPERATING ON NATURAL GAS Cost Per 1000 Cu Ft 1125 B.T.U		KRW INDUSTRIAL UNIT OPERATING ON GASOLINE Cost Per Gallon (Tax Free)	
	$ .03	$ .05	$ .30	$ .50	$ .10	$ .15
15	.41	.68	.054	.09	.19	.29
20	.54	.90	.072	.12	.25	.38
25	.68	1.13	.09	15	.30	45
30	.82	1.36	108	.18	.34	.51
35	.95	1.58	.126	.21	.39	.59
40	1.08	1.80	.144	.24	.44	.66
45	1.23	2.04	162	.27	.49	.74
50	1.35	2.25	.18	.30	.54	.81
60	1.64	2.72	216	.36	.63	.95
70	1.90	3.16	.252	.42	.71	1.07
80	2.16	3.60	.288	.48	.88	1.32
90	2.46	4.08	324	54	.98	1.48
100	2.70	4.50	360	60	1.08	1.62



KRW Power keeps this feed mill humming.

STUDY THIS CHART IN TERMS OF YOUR INDIVIDUAL NEEDS

The table above shows the comparison of operating costs per hour for (1) Electric Motor, (2) KRW Unit operating on natural gas and (3) KRW Unit operating on gasoline. For dependable, constant-duty power, we recommend an engine speed not to exceed 2250 RPM and that only two thirds of the B. H. P. developed at any given speed should be used. Thus at 2250 RPM the engine develops a maximum of 64 B. H. P. on Gasoline and 55 B. H. P. on Natural Gas. This is usable Horsepower, available for short periods only. Two thirds of this or the constant duty power would be 43 B. H. P. and 36 B. H. P. with Gasoline and Natural Gas respectively. By using only two thirds of the maximum available Horsepower, reserve power is maintained for variations in fuel, lubricating oils, adjustments, ignition and climatic conditions. (There is a 3 to 5 per cent power loss for each 1000 feet of altitude.)

For highest efficiency, long engine life and economy, an engine speed of 1800 RPM has proven most satisfactory. Ford V-8 Engines are so highly developed and perfectly balanced, that an operating speed of 1800 RPM is recommended regardless of the Horsepower to be used.

See your Ford Dealer or Write...

K·R·WILSON

215 MAIN ST · BUFFALO 3 N Y

K. R. Wilson, 215 Main St., Buffalo 3, N. Y. 25

Please send me information and prices on KRW INDUSTRIAL POWER UNITS for

Generating Electricity ☐ Power Take-off ☐
Equipped for gasoline ☐ Natural gas ☐ Butane ☐

Firm _____

Address _____

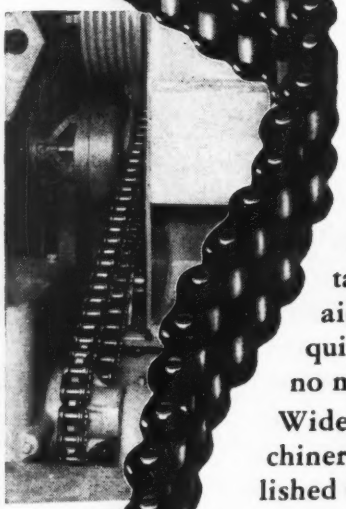
Always–
These Same Characteristics

• Uniform Quality • Great Reserve Strength

• Dependability • Precision

• Quietness

In All Pitch Sizes—¼" to 2½"

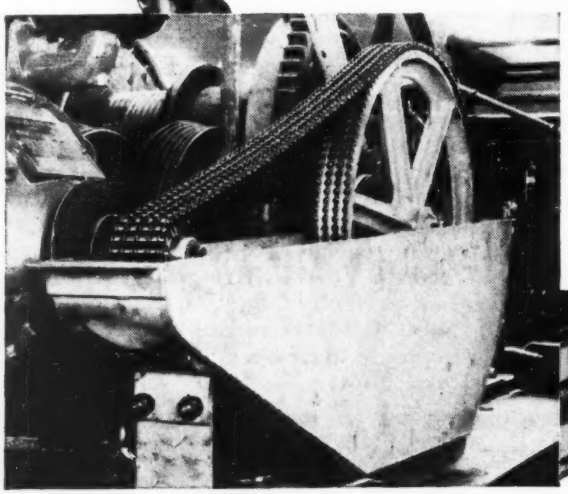


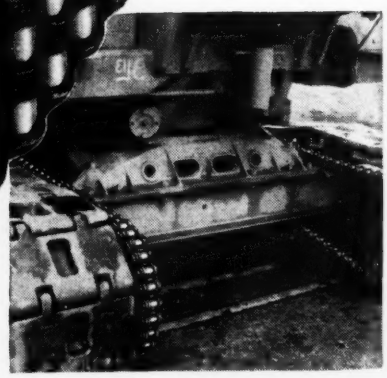
With DIAMOND Drives, load is spread over numbers of sprocket teeth and separating forces are absent.

Quietness and long life are due to uniform accuracy in chain manufacture plus the muting and lubricating effect of the oil film within the chains. Inherent elasticity, retained high efficiency (98-99%), and extreme durability aid in profitable performance. If replacement is ever required, new chain can be put over original sprockets with no major dismantling.

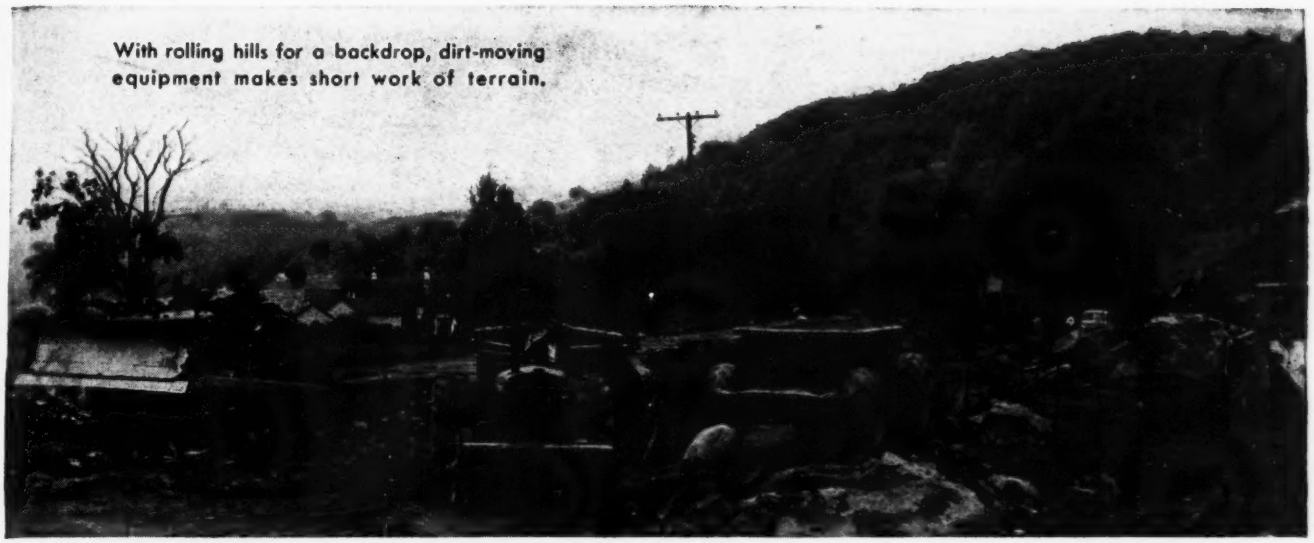
Widely used on America's foremost construction machinery, Diamond Roller Chain Drives have well established their many advantages.

To machinery builders, Diamond engineers offer help in recommending appropriate, dependable and efficient drives. DIAMOND CHAIN COMPANY, Inc., Dept. 418, 402 Kentucky Avenue, Indianapolis 7, Ind. *Offices and Distributors in All Principal Cities.*



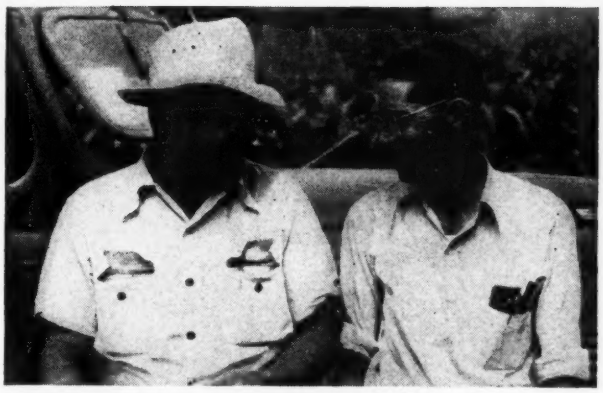


DIAMOND **ROLLER CHAINS**



With rolling hills for a backdrop, dirt-moving equipment makes short work of terrain.

Building New Road in the Catskills



Joseph Serafini, contractor (left), chats with Andrew Moraes, superintendent.

Route 23, popular highway from southwestern Massachusetts to central New York, is now undergoing repair and relocation in the Catskill Mountains area. These photographs were taken between Prattsville and Windham, N. Y., and show construction by Serafini Construction Co., Binghamton, N. Y. Bridge reinforcing, bar mats and road joints were furnished by Bethlehem.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

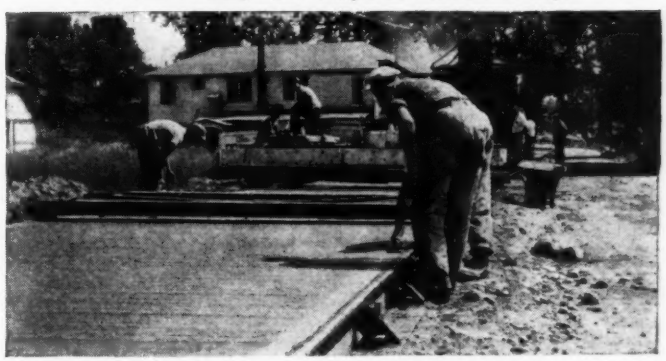
★ BETHLEHEM STEEL ★

STEEL FOR HIGHWAYS

Road Joints Reinforcing Bars Bar Mats
Guard Rail Guard Rail Posts
Wire Rope and Strand Hollow Drill Steel
Spikes Bolts and Nuts
Timber Bridge Hardware Tie-Rods

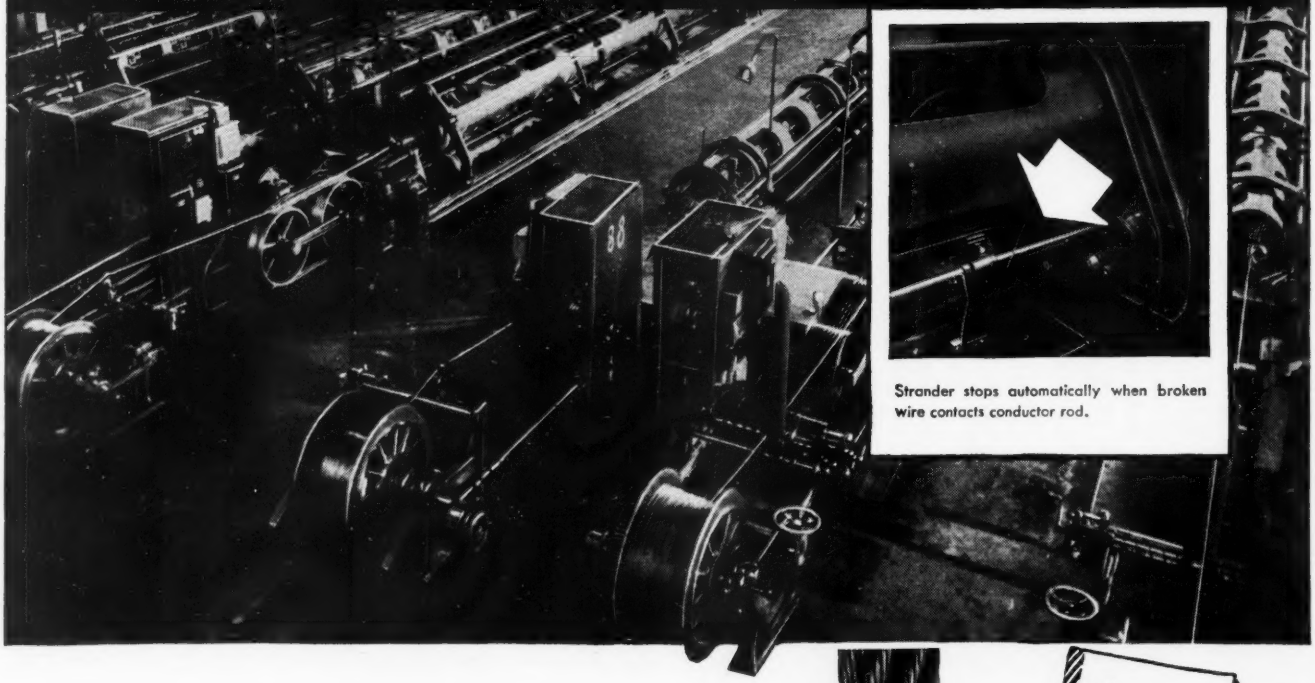
Conveniently stored adjacent to highway, Bethlehem Bar Mat is raised into place after strikeoff.

No time lost here. As workers spade concrete over bar mats, truck dumps new load into skip.



Broom-finished first lane starts to take shape. Here hand finisher completes work on side of slab.

Giants With Super-Sensitive Nerves



Strander stops automatically when broken wire contacts conductor rod.

Wickwire's modern rope machines (some of which twist as many as 46 wires into strand in a single operation) operate at tremendous speed. Yet, if a single wire breaks or if the wire in a spool runs out, the entire machine comes to a dead stop in less than six seconds.

When the sensitive automatic electric controls and air brakes have brought the strander to a stop, the wire ends are micro-welded by a skilled operator, who subsequently anneals the weld to restore its original toughness and ductility. Such thoroughness is your assurance of the uniformity and perfect construction, necessary if a rope is to deliver the utmost in performance, safety and long life.

Wickwire Distributors and Rope Engineers in key cities everywhere are ready to help solve your wire rope problems and to supply the type of rope that best meets your requirements. Wickwire Rope is available for prompt delivery from strategically located warehouse stocks and is supplied in all sizes and constructions, both regular lay and WISSCOLAY *Pre*formed.

HOW TO REDUCE ROPE COSTS AND PROLONG ROPE LIFE

Thousands of wire rope users have found that the information packed in the pages of "Know Your Ropes" has made their work easier. It's full of suggestions on proper selection, application and usage of wire rope. It's easy-to-read and profusely illustrated. For your free copy, write—Wire Rope Sales Office, Wickwire Spencer Steel, Palmer, Mass.

WICKWIRE ROPE

CF&I & SUBSIDIARIES

A PRODUCT OF THE WICKWIRE SPENCER STEEL DIVISION OF THE COLORADO FUEL AND IRON CORPORATION

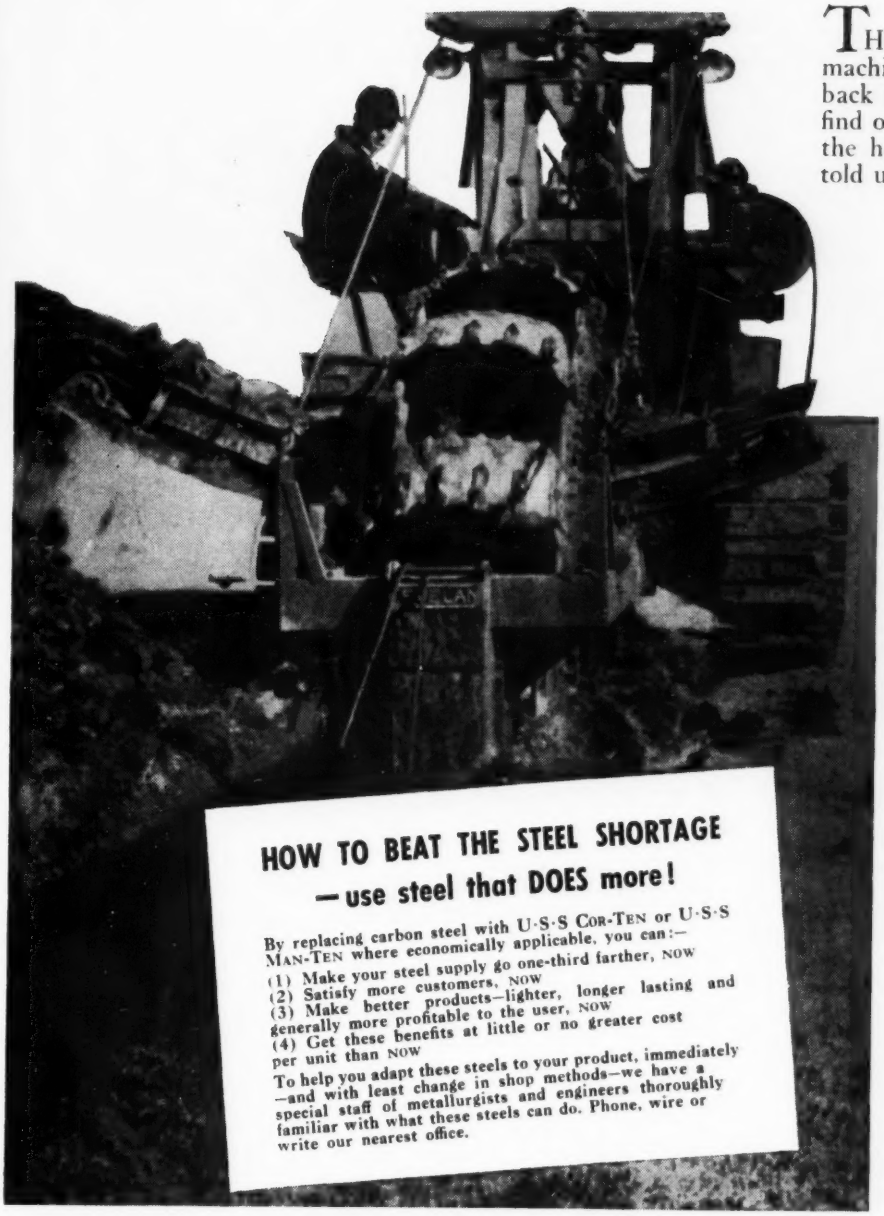
WIRE ROPE SALES OFFICE AND PLANT—Palmer, Mass. **EXECUTIVE OFFICE**—500 Fifth Avenue, New York 18, N. Y.

SALES OFFICES—Abilene (Tex.) • Boston • Buffalo • Chattanooga • Chicago • Denver • Detroit • Emlenton (Pa.) • Fort Worth • Houston • New York • Philadelphia • Tulsa

PACIFIC COAST SUBSIDIARY—The California Wire Cloth Corporation, Oakland 6, California

CLEVELAND TRENCHER

digs up some facts about U·S·S MAN-TEN


HOW TO BEAT THE STEEL SHORTAGE
— use steel that DOES more!
By replacing carbon steel with U·S·S COR-TEN or U·S·S MAN-TEN where economically applicable, you can:—
(1) Make your steel supply go one-third farther, NOW
(2) Satisfy more customers, NOW
(3) Make better products—lighter, longer lasting and generally more profitable to the user, NOW
(4) Get these benefits at little or no greater cost per unit than NOW
To help you adapt these steels to your product, immediately —and with least change in shop methods—we have a special staff of metallurgists and engineers thoroughly familiar with what these steels can do. Phone, wire or write our nearest office.

THE makers of these famous trenching machines started using U·S·S MAN-TEN way back in '39. They've had plenty of time to find out all about this, one of the earliest of the high strength steels. Here's what they told us in a recent letter:

> **"Much of the success of Cleveland Trenchers is due to the use of MAN-TEN. Used 100% in the digging wheel rims and buckets, MAN-TEN imparts greater strength and greater toughness to these digging elements — eliminates useless deadweight in their construction—enables us to produce a lightweight, rugged and well-balanced machine that will tear into sharp sand, hard clay, sandstone formations, shale, adobe and gumbo at a high rate of speed.**
>
> **"By using MAN-TEN in frame and structurals also, we are able to keep the overall weight of the trencher down, to increase its mobility and to step-up ruggedness and dependability. These are important factors in a machine like this that must operate in all kinds of weather and often in the most remote locations. MAN-TEN has satisfied our requirements perfectly—we have had uniformly good results from its use."**

Kind of a nice letter, eh? We're happy to say we've had many others, from builders of bulldozers, graders, scrapers, trucks and snow plows, that give credit to U·S·S MAN-TEN for making their equipment more efficient, easier to run, able to do more, and slower to wear out.

If you'd like to find out how you can use MAN-TEN or the other U·S·S High Strength Steels to give you equally worthwhile results in the fields of activity best suited to their superior properties, write us.

U·S·S HIGH STRENGTH STEELS

U·S·S COR-TEN · U·S·S MAN-TEN · U·S·S ABRASION-RESISTING · U·S·S MANGANESE-NICKEL-COPPER

USS HIGH STRENGTH STEEL UNITED STATES STEEL

8-180

UNITED STATES STEEL AMERICAN STEEL & WIRE COMPANY, Cleveland, Chicago & New York
CARNEGIE-ILLINOIS STEEL CORPORATION, Pittsburgh & Chicago · COLUMBIA STEEL COMPANY, San Francisco
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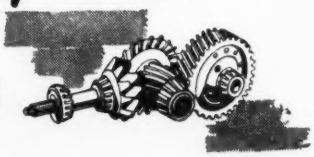
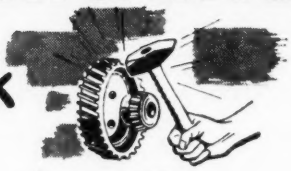
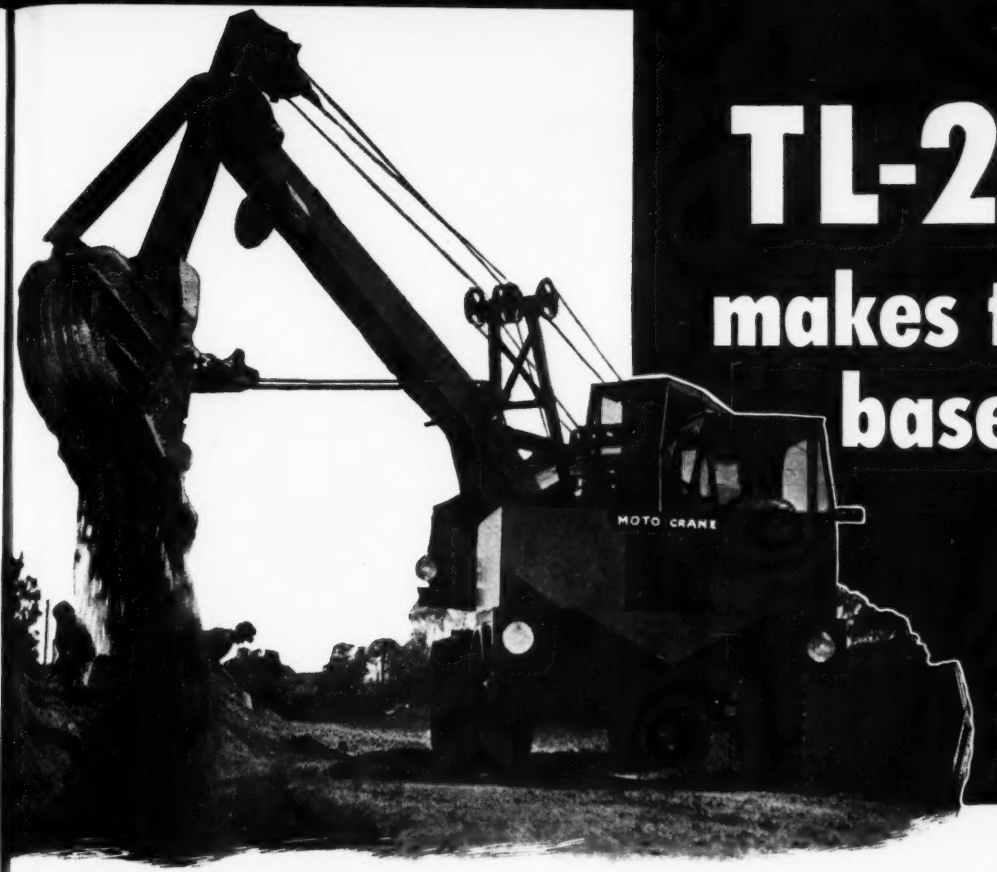
UNITED STATES STEEL SUPPLY COMPANY, Warehouse Distributors — Coast to coast · UNITED STATES STEEL EXPORT COMPANY, New York

Now you can get added protection against wear on costly final drives and differential gears  on trucks and buses. **STANDARD HEAVY DUTY GEAR LUBRICANTS** cushion gears against shock  and wear under high torque loadings in rear axles. They do not form deposits at high operating temperatures and they give good rust protection. End final-drive troubles with

These all-purpose lubricants are not only especially efficient in truck and bus final drives—both hypoid and spiral bevel gears—but also are recommended for transmissions, steering gears, fluid-lubricated universal joints, etc. A Standard Automotive Engineer will help you test this new line of maintenance-reducing gear lubricants. Write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

STANDARD HEAVY-DUTY GEAR LUBRICANTS

STANDARD OIL COMPANY (INDIANA) STANDARD

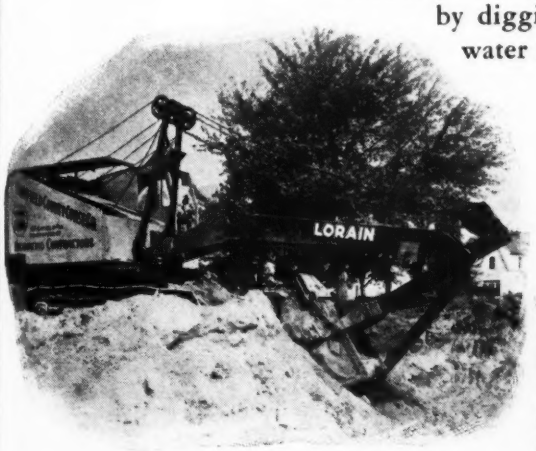


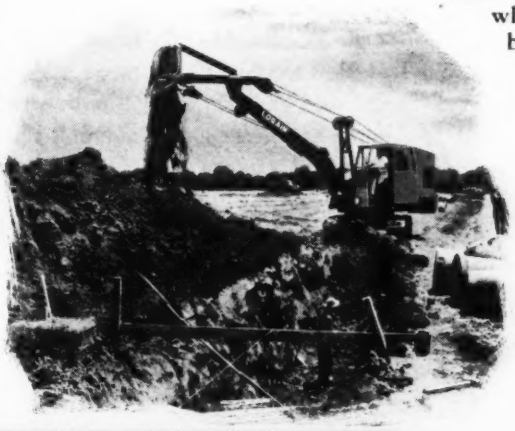
TL-20 HOE makes trench and basement jobs HUM!

GOOSENECK boom for maximum digging ranges; ability to dig hard materials; close control of dipper for precision work—These Lorain TL-20 Hoe features make it a top flight operator on deep trench excavation for sewer, water and pipe lines.

And you should see the TL-20 breeze through those small basement jobs! Working from the top, without need for ramp, this unit (1) cuts straight vertical walls; (2) levels and grades the floor; (3) digs neat, sharp corners; (4) leaves little hand trimming and (5) tops off the job by digging sewer and water line connections.

The Lorain TL-20 Hoe offers a choice of mountings—2-speed chain drive crawler, 4 or 6 wheel mobile rubber-tire units with or without front wheel drive. Interchangeable boom equipment enables the "20" to switch to shovel, crane, clamshell or dragline operation in a jiffy. It's the most "versatile specialist" at work today—and you can get all the facts by asking your local Thew-Lorain distributor.





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THE THEW SHOVEL COMPANY
LORAIN, OHIO

CRANES • SHOVELS • DRAGLINES • MOTO-CRANES

Why pour contracting dollars

"down the drain"?

ARMCO Perforated Pipe has been widely used under major airports, mainline railways, highways, and wherever else firm, dry subgrades are needed.

Experienced contractors have long known how ARMCO Perforated Pipe helps clinch profitable subdrainage bids. Today the time- and labor-saving features of this pipe are more important than ever.

Savings start the minute you begin to transport ARMCO Pipe to the job site. Although amply strong it is light in weight for easy handling, loading and hauling. Fewer trips and less labor are needed and there is no danger of breakage. A small, unskilled crew can quickly install an Armco subdrainage system. With simple band couplers you speedily join long lengths into a sturdy conduit that resists shifting soils, frost action and the weight of heavy traffic.

Engineers are usually familiar with Perforated Pipe and accept your bid with confidence. They know it keeps subgrades dry and firm, provides freedom from failure, lowers maintenance expense and protects their investment.

With ARMCO Pipe you are always sure of a first-class job—the kind that lives up to specifications and means future business. Write us for detailed information. Armco Drainage & Metal Products, Inc., 1535 Curtis Street, Middletown, Ohio.

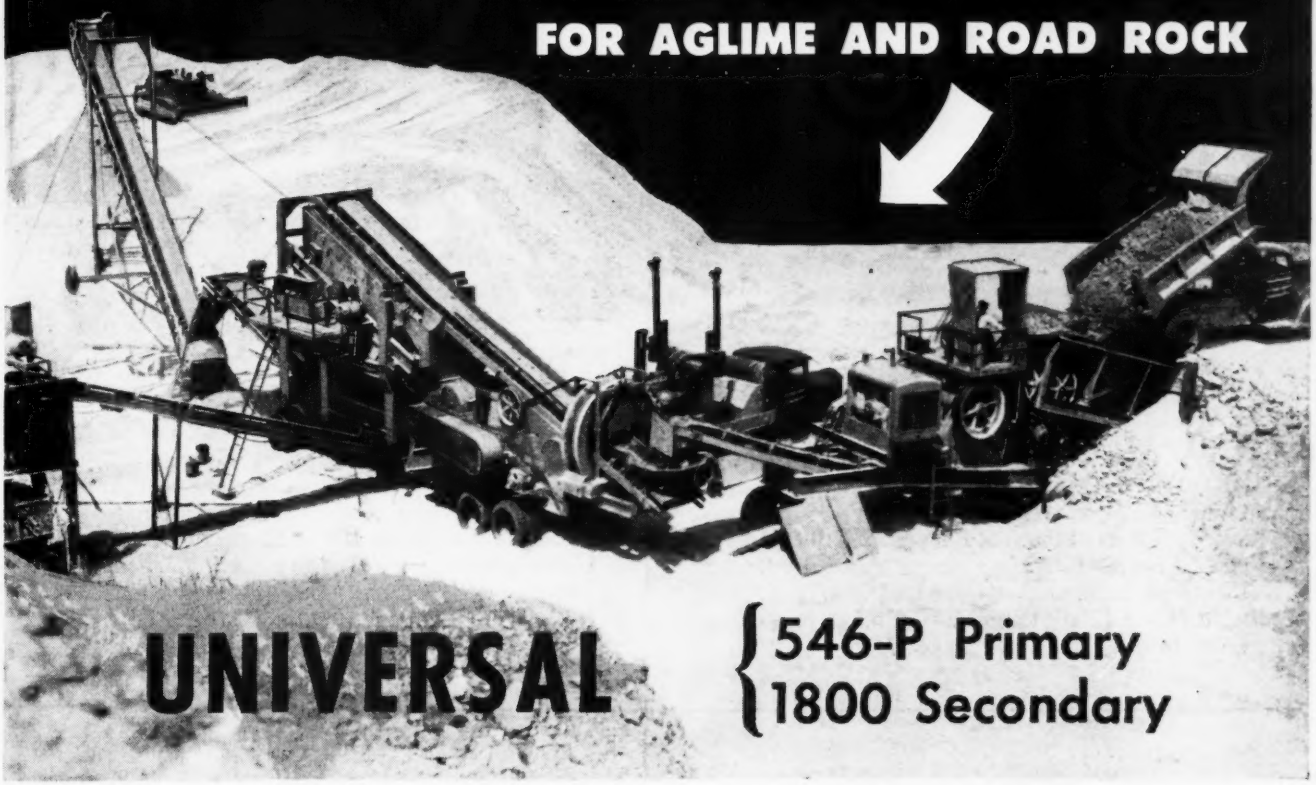
Export: The Armco International Corporation

ARMCO PERFORATED PIPE

ARMCO

A RIGHT COMBINATION

FOR AGLIME AND ROAD ROCK



UNIVERSAL { 546-P Primary 1800 Secondary

The 546-P Primary is fed direct from quarry by power shovel, or trucks dumping from ramp set-up. It consists of a jaw crusher, shovel-loading hopper with built-in apron feeder, bar-grizzly and by-pass, operator's platform and ladder, under conveyor and power—all mounted on a gooseneck truck with pneumatic tires, brakes, and rear wheel equalizers.

The 1800 Series Secondary receives the output of the 546-P, screens out the finished aglime and road rock. and delivers the oversize to a Universal hammermill. The output of this mill is returned to the main conveyor by means of an underconveyor and Rotovator wheel. Finished products are delivered to trucks or stock piles by belt conveyors. By adjusting the hammers and changing the grates in the hammermill you can regulate the size of the finished product to aglime or road rock or both. The 1800 Series Secondary is available in 3 sizes with capacities up to 150 tons per hour of aglime and road rock.

Universal builds a variety of "Right Combinations" for aglime and road rock production. Let Universal show you how to get volume production at a cost that leaves more profit. Write for Bulletin No. 551.

For flexibility, portability, and profit-making capacity you can't beat this two-unit Universal "Stream-Flo" combination. It's a complete crushing, screening, and loading plant for volume production of either aglime or road rock.

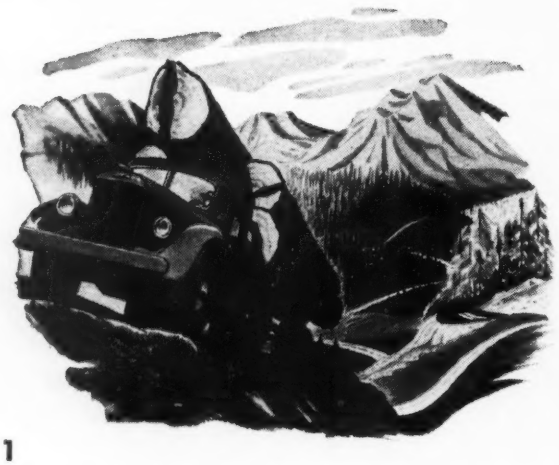
*FOR **MORE** TONS PER HOUR*
*AT **LESS** COST PER TON*
*IT'S **UNIVERSAL***

UNIVERSAL ENGINEERING CORPORATION

327 8th ST., N. W. CEDAR RAPIDS, IOWA

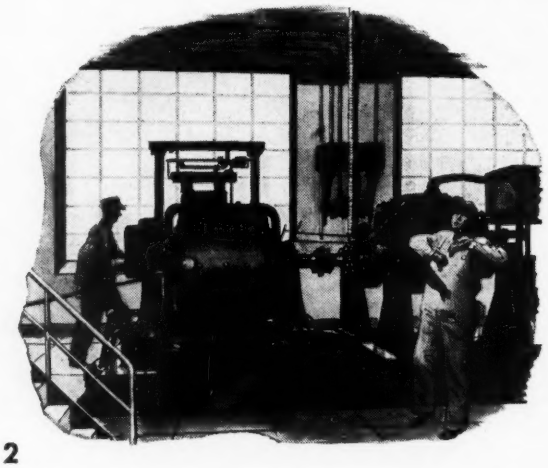
ENGINEERS AND BUILDERS OF "STREAM-FLO" ROCK, GRAVEL, AND LIME PLANTS, SCREENING AND WASHING PLANTS—CONVEYORS—APRON FEEDERS

Have a case of shock to cure?



1

"Rev 'er up" is the cry as truck engines roar up to 3000 RPM on giant test stands. It's done to make sure they'll stand the gaff. But occasionally an engine gets ornery — backfires; stops suddenly. Shock! Plenty of it. But what's a backfire to you? Well, what Morse Chain Company did about it may be a boon to *your* business, too . . .

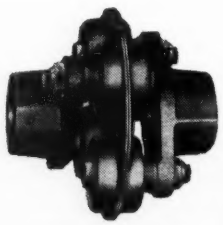


2

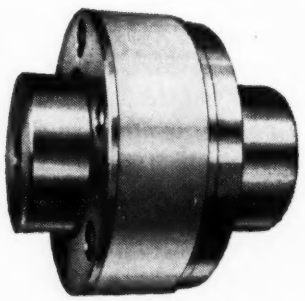
Shake, shock and shimmy were the problems Morse Power-Transmission Engineers found on test blocks: a natural for Morse Morflex Coupling. This versatile Morse product absorbs torsional shock, teeth-rattling vibration, and shaft misalignment. Morflex between engines and test blocks reduced bearing wear, protected equipment. This helps you to . . .

3

Save yourself a headache. Shafts, wheels and machines in your business can be safeguarded. When shaft vibration causes bearing failure it might be prevented by Morflex. *Wherever there is industry* they are adaptable to universal drive connections; allow no power loss; are sealed against dirt and moisture; free of metal-to-metal contact!



Morflex Coupling

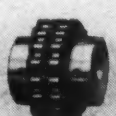


4

Morflex Radial Coupling

Proof of outstanding performance? Call or write Dept. 117, Morse Chain Company, Detroit, Michigan. Hear case histories from experienced Morse Engineers. You'll soon see *how* and *why* Morse Couplings, Roller and Silent Chains, Sprockets and Clutches have been profitably applied by America's foremost manufacturers.

Roller Chain Drives



Roller Chain Couplings

Silent Chain Drives

MORSE

MECHANICAL POWER TRANSMISSION PRODUCTS

A PRODUCT OF B-W BORG-WARNER

Free Wheeling Clutches

MORSE CHAIN COMPANY • DETROIT 8, MICHIGAN

PLAN to Come to THE GREATEST SHOW ON EARTH for the CONSTRUCTION INDUSTRY

BETTER ROADS FOR A BETTER WORLD

45th Annual Convention and Road Show

SOLDIER FIELD
CHICAGO
JULY 16-24, 1948

AMERICAN ROAD BUILDERS ASSOCIATION

OVER 30 FOOTBALL FIELDS OF EQUIPMENT

- The Most Important highway and construction event in 1948!
- For the First Time heavy machinery exhibited and OPERATED out-of-doors!
- Brand New ideas in equipment!
- Completely new types of equipment for greater job profits!
- Discussions on pertinent Highway and Construction problems by international authorities!

If you are going to keep up with changing conditions, changing methods, changing costs and new and projected equipment, you can't afford to miss the International Road Show and Convention. Remember this is the *first Road Show since the war*—your first opportunity to see new and improved equipment first-hand. Plan to set aside July 16 to 24 for bringing yourself up-to-date on what is going on in the construction industry.

Here is a nine-day opportunity to compare all types of construction equipment, meet old friends, make new contacts and hear international authorities discuss the latest methods on the construction and maintenance of streets, roads and airports. Don't wait—Make your reservations NOW.

45th ANNUAL CONVENTION AND INTERNATIONAL ROAD SHOW

SOLDIER FIELD • JULY 16-24, 1948

Construction Methods—July . . . Engineering News-Record, July 8, New York 18, N. Y.

BUY and SPECIFY GOODYEAR — *it pays!*

Goodyear's super-tough HARD ROCK LUG

This Tire Is Tops

for TOUGH operations

A right tire for each job

"TOUGHEST thing on wheels" is what users call this work-hungry tire. It's Goodyear's Hard Rock Lug—proved by years of service to be without equal in stamina on the most punishing, tire-killing jobs. That's because, from beads to tread, it's job-tailored for super-tough work. Its massive lug bars guard tread and sidewalls against cuts and bruises. Its extra-thick undertread armors the rayon cord body against bruising impacts. And its self-cleaning universal tread pulls forward or reverse with equal power.

That's why this tire is tops—*is first choice on the toughest jobs*—comes through with low-cost, long-life performance typical of all job-proved Goodyear tires. It's another big reason why year after year, *more yards are moved on Goodyear off-the-road tires than on any other kind!*

ALL-WEATHER EARTH MOVER for drawn vehicles and general traction

SURE-GRIP for maximum traction on drive wheels

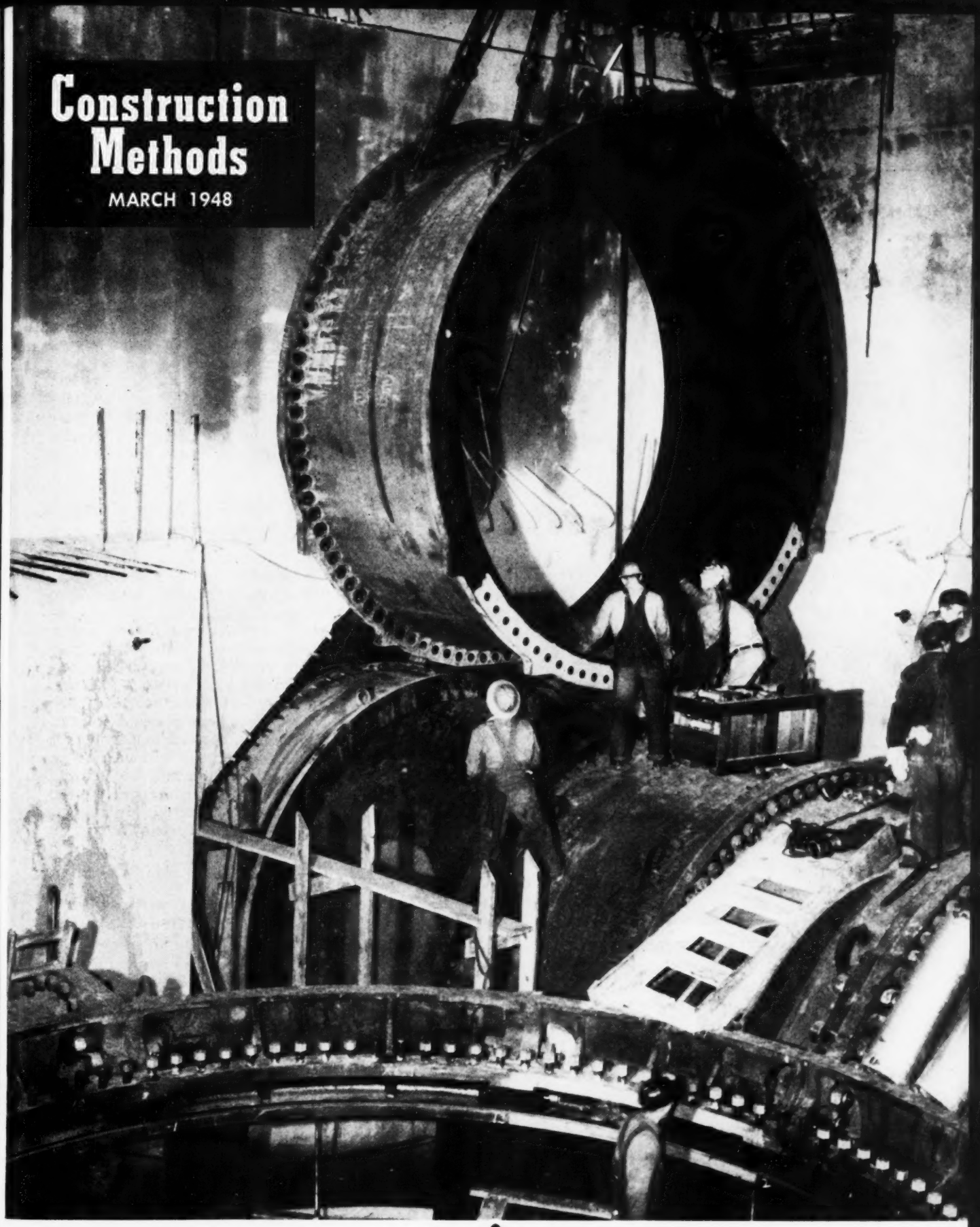
Sure-Grip, All-Weather—T.M.'s The Goodyear Tire & Rubber Company

1898 GOODYEAR 50 ANNIVERSARY 1948

GOODYEAR

MORE YARDS ARE MOVED ON GOODYEAR OFF-THE-ROAD TIRES THAN ON ANY OTHER KIND

Construction Methods
MARCH 1948



Tight Squeeze for Big Ring

LAST SECTION of the big 16-ft. penstock L-9 slides into place in the west powerhouse at Grand Coulee Dam. U. S. Bureau of Reclamation construction forces swing pipe section from supports overhead by huge chain falls that lower the heavy load slowly but surely into last notch in penstock. Part of power unit is in foreground. Turbine will develop 150,000 hp. under 350-ft. head.

HEATED CONCRETE pumped from mixing plant is chuted to foundation form in bitter winter weather at Union Falls hydro dam on Maine's Saco River.

Twenty Below...

But Concreting Continues on Maine Dam

IN SUB-ZERO WEATHER, when most northern construction slows while contractors hug the office stove and rebuild old jobs or speculate about new ones, Sanders Engineering Co., Portland, Me., is pushing construction of Union Falls Dam, a hydro project for the Central Maine Power Co. Early and thorough preparations for winter work are paying off handsomely. For a huge aggregate stockpile, a sweet plant setup, easily moved forms and, especially, liberal use of steam heat from two big boilers keep top-quality, air-entrained, pumped concrete flowing to the dam despite 20-below temperatures, snow and howling winds.

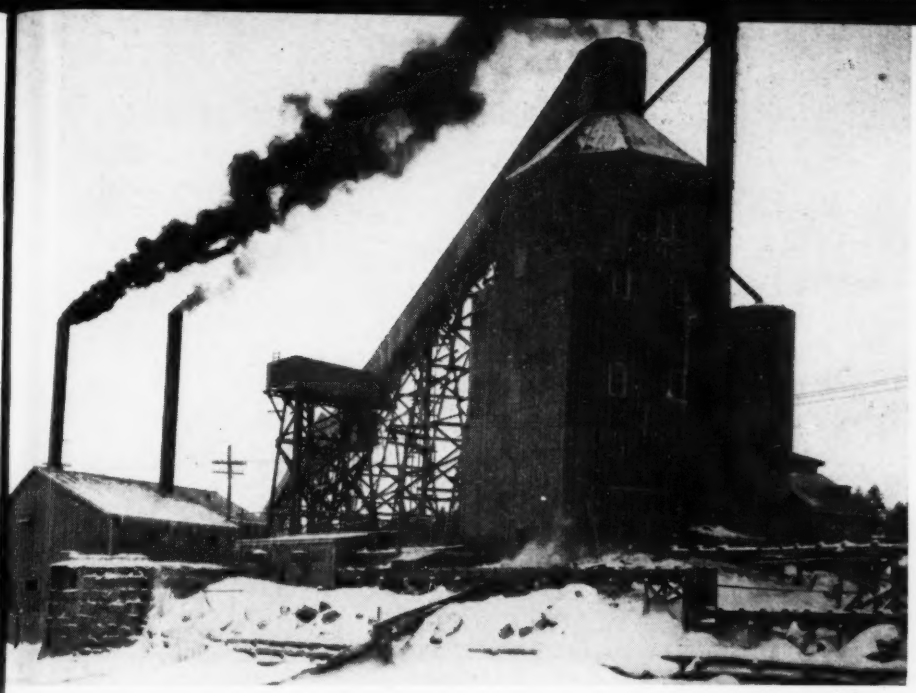
60,000-Yd. Concrete Dam

Main unit of the Union Falls development on the Saco River 9 mi. above Biddeford is a 481-ft., 60,000-cu.yd. concrete gravity dam with a pair of 12,000-kva. generators in a power-house in the center. Preliminary work of diverting the river, cofferdamming the site and excavating most of the foundation (CONSTRUCTION METHODS, Aug. '47, p. 102), was completed last year. Concreting, started in October, is being continued without let-up during the winter in a race to bring the structure high enough so it will not be overtopped and the work halted by spring floods.

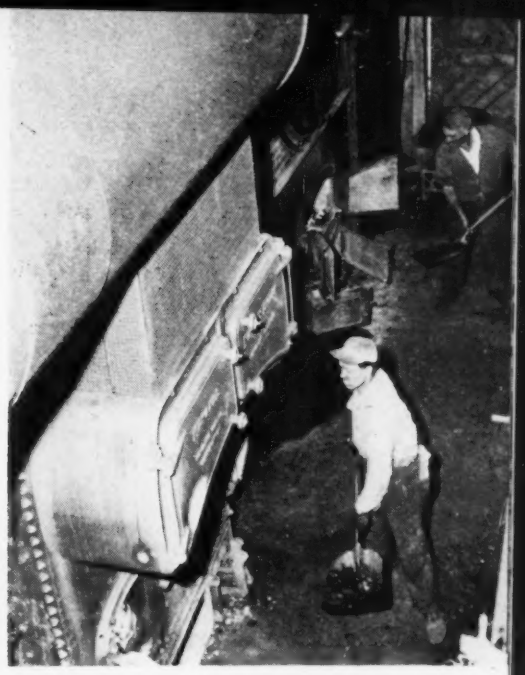
Job Boilers Develop 232 Hp.

King pin in the winter work is the pair of boilers—a 125-hp. Kewanee and a 107-hp. Stewart—that supply steam for multiple thawing, heating and concrete curing. Boilers now burn soft coal but earlier were fired with slab wood from the job sawmill. From trees cut during reservoir clearing, the mill also produced 1½ million b. ft. of lumber for cofferdam sheeting, forms, bins, plant enclosures and shop buildings, and even sawdust to plug cofferdam leaks and insulate some isolated steam lines. Thus, like the boastful meat packers, Sanders uses everything but the squeal of the saw.

From the boiler house on the river's right bank 700 ft. downstream from the dam, 100-lb. steam is piped throughout the job in 4- to 1-in. mains in covered wooden ducts. Usually, air and water lines run alongside the steam mains which are then left uninsulated to



CONSTRUCTION PLANT, downstream from dam, includes (l. to r.): boiler house, elevated 5,000-gal. emergency storage tank for boiler feed and mixing water, compressor house, concrete plant. Wood duct carries air, water and steam pipes to damsite; trestle at right supports Pumpcrete lines.



HOT SPOT on cold job is furnace room where pair of boilers generates steam for project. Two-story boiler house is built into river bluff so delivering trucks on upper level can dump coal directly to bunkers.

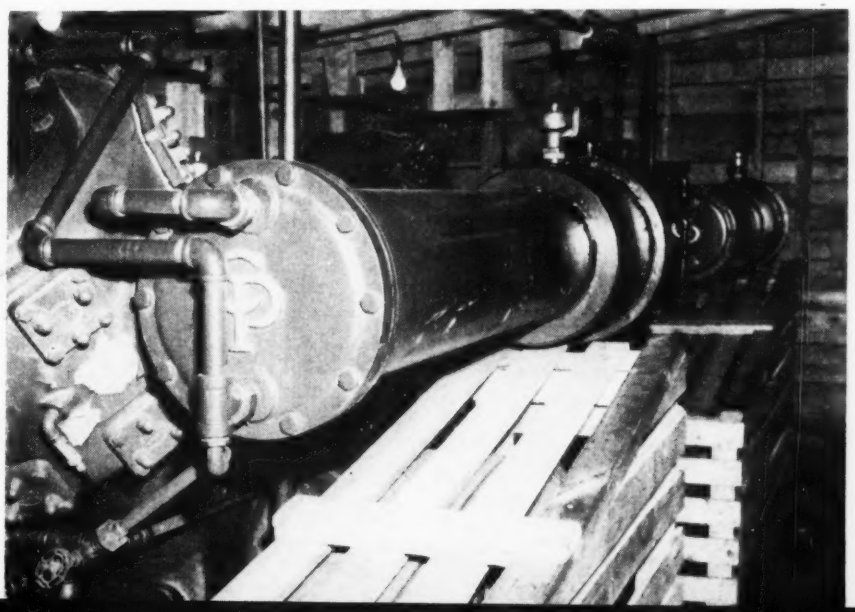
prevent the others from freezing. All service lines can be tapped through frequent valves beneath hatches in the duct cover.

So he wouldn't have to dig frozen ground, haul over snowy roads and crush, screen and wash during frigid weather, the contractor stockpiled aggregate ¼ mi. down river from the dam last summer and fall. All aggregate came from a gravel pit 4 mi. from the job, and was processed in a 100-ton per hr., Diamond No. 65 portable unit set up at the stockpile as there was no wash water at the source. The plant produced sand and two sizes of gravel: ¼ to 1 in. and 1 to 2½ in.

When aggregate production stopped on October 1, the stockpile held 70,000 cu.yd. of processed sand and gravel — more than enough for the 25,000 yd. of concrete planned for winter pours. Aggregate is stored in a single 300x250-ft. mound 40 ft. high, which is steam heated. To confine the material for minimum heat loss and easy reclaiming through an under-pile tunnel, yet keep the sizes separate, two outside and three intermediate walls form open-end bins dividing the mound. Walls are 3-in. planking spiked to long timber piles on 6-ft. centers. Outside walls are additionally braced by two lines of inclined shores. Material from the stockpile edges is bulldozed or clamshell-cast toward the center as aggregate is drawn down on to a 24-in.x300-ft. reclaiming belt in an 8x8-ft. timber tunnel beneath the pile.

The reclaiming tunnel also carries a 3-in. steam main which feeds 1¼-in. heating coils placed just above to thaw the aggregate. There are two loops of closed pipe, with return, plus two perforated

COMPRESSED AIR for such diverse uses as foundation drilling and bulk cement agitation comes from pair of 550-cfm. Chicago Pneumatic two-stage units (below). V-belt drives from electric motors are inclosed for safety.



STOCKPILE IS POLICED by International TD 14 tractor with Bucyrus-Erie bulldozer blade. Steam coils keep material thawed.

SNOWY STOCKPILE holds plenty of aggregate for winter concreting. Dividing walls separate different sizes and hold pile together to lessen heat loss and reduce reclaiming belt length.

lines in each division of the stockpile. The closed system's dry heat is sufficient for ordinary warming, and live steam is run through the aggregate only in severest weather. In addition, extra steam coils may be placed on top of the pile, under tarpaulins, to thaw the upper layers. These lines are fed from the tunnel main by vertical risers alongside each bin dividing wall.

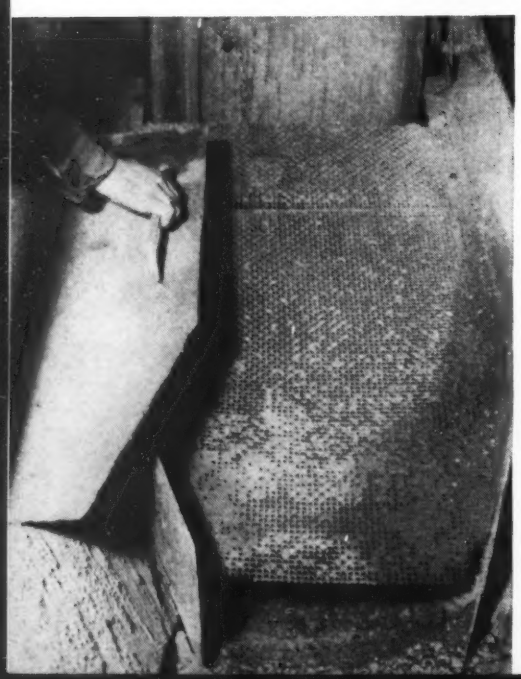
A two-flight, 24-in. inclined belt conveyor moves reclaimed aggregate to the concrete plant, which is midway between stockpile and dam. Belts are 300 and 200 ft. long, with a short chute between. To give the gravel a final cleaning, Sanders replaced the chute bottom with a ¼-in. mesh screen which passes proper size aggregate and wastes the fines on the ground beneath. When the belts are carrying sand, the screen is covered with a steel plate. The conveyor and walkway alongside are completely inclosed with 55-lb. rubberized roll roofing battened to 1-in. rough lumber sheathing.

Similarly inclosed is the concrete plant; a four-level steel frame structure with an 80-yd. per hr. capacity. Concrete pumps are on the ground floor, mixers on the second, water and admixture tanks and batching apparatus on the third, with aggregate and cement bins on the top level.

Bulk cement is trucked 4 mi. to the plant from a 585-bbl. intermediate storage silo at a railroad delivery siding. From a 50-bbl. under-truck hopper at the plant, cement is screw-fed to a 90-ft. elevator which spouts it to an 875-bbl. storage silo alongside or to a 500-bbl. tank at the top of the plant.

The cement tank is surrounded by four 100-ton aggregate bins receiving material through a turn head from the two-flight conveyor. Dry and perforated steam coils were installed in plant bins for additional heating of aggregates, but are not needed as stockpile heating is sufficient.

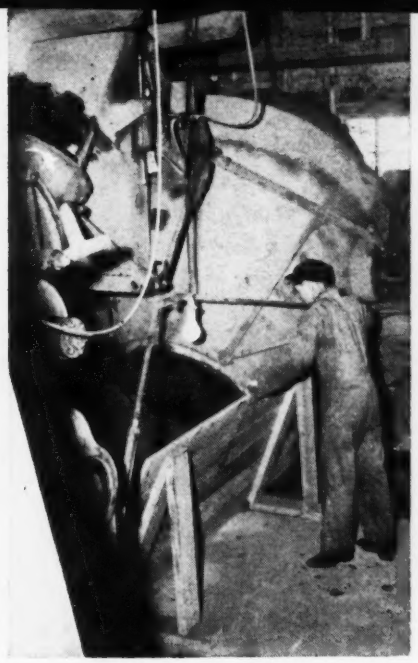
On the floor below the bins, mixing water pumped at 40 deg. from the Saco River is heated by thermostatically controlled steam immersion heater. Water is stored here in a 120-gal. batch-feed tank



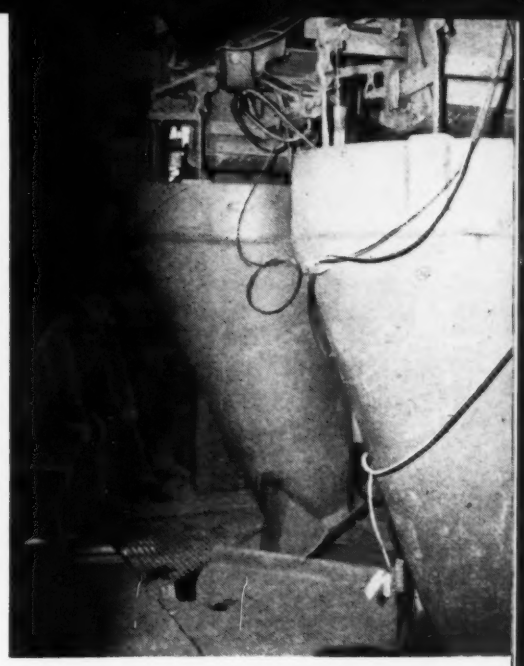
← **AUXILIARY SCREEN** removes excess fines from gravel aggregate as it drops from first to second flight of conveyor to concrete plant. Plate covers screen when sand is moved.

→ **CEMENT TRUCK** with covered body backs into lean-to at plant to dump 40-bbl. load into hopper. Fleet of Mack and Sterling trucks hauls bulk cement from railroad siding 4 mi. away.

HEART OF BATCHER in concrete plant is control panel of Johnson unit that automatically weighs six mix materials, including air-entraining admixture. Admixture reduces bleeding of concrete especially troublesome in freezing weather.



TILTING MIXER discharges 2-yd. batch of concrete through hatch to Pumpcrete machine. Around mixers, floor is curbed and lined with sheet metal for easy cleanup. Temporary wood barrier guards hatch, lessens spillage.



PLANT OPERATOR on batcher level watches through wire mesh floor panel to check correct 3-in. slump of concrete in mixers below. After minimum of 2¼ min., mixers are stopped and slump judged by amount drum rolls back—greater slump, less rollback.

and a 500-gal. reserve tank, and Sanders moved the heater from the former to the latter to keep water at a more even temperature. Darex air-entraining admixture, diluted with water to give a weighable quantity, is stored in a 100-gal. tank at this level also.

A C. S. Johnson automatic batcher weighs all material for the air-entraining concrete mixes shown in an accompanying table. Moisture control on the unit compensates for water in the sand and fine gravel, as determined by the control engineer, and all operations are interlocked to prevent double batching into the mixers.

Each 2-yd. batch is dumped through a swing gate to one of two Koehring 2-yd. tilting mixers on the floor beneath. Mixers are electrically driven, and are tilted by pneumatic ram. When too-rapid mixer tilt and return jarred the plant excessively, the contractor slowed it up with a simple check valve in the discharge lines from the air cylinder.

After a minimum 2¼-min. mix, the machines dump through a selector gate into two concrete pumps at ground level. Both are Rex double Pumpcretes: a 7-in. 180 and an 8-in. 200. Concrete leaves the pumps at 45 to 70 deg. and loses little heat while flowing through the pipes. Before a pour, Pumpcrete lines are thawed with live steam, usually for 5 min. per 100 ft.

Although Sanders pumps concrete on many of their jobs, they find it especially advantageous on winter work. Pumping concrete directly to the forms avoids the hazards of operating trucks, cranes or other concrete placing equipment on ice or snow, and also reduces the force working exposed to the bitter cold.

Concrete is poured in 5-ft. lifts

CONCRETE MIXES (2-Yd. Batch)

CLASS	A-3,500 psi.	B-3,000 psi.
Cement	1,035 lb.	940 lb.
Sand	2,320	2,340
Fine Gravel (¼-1-in.)	1,830	1,860
Coarse Gravel (1-2½-in.)	2,290	2,260
Water	545	580
Darex	165 c.c.	150 c.c.
W./C. Ratio (max.)	5.5 gal./sack	6.0 gal./sack
Slump	2½-3½ in.	2½-3½ in.
Air Content	3-5 percent	3-5 percent

PUMPED CONCRETE (below) flows to form from chute on swivel support at pipe end. Frame of welded reinforcing steel holds Pumpcrete line.

DURING POUR, concrete is vibrated with Viber electric unit, and exposed surface of adjoining block is defrosted with live steam. Vertical pipe at left is inlet to cooling coils in center of lift.

in clever panel forms that are easily erected and stripped, even with numbed hands. Panels are 5 ft. high and 10 ft. long of 1¼-in. dressed lumber, braced around all edges with 2x6's, and with two intermediate 2x6-in. horizontal studs. Only one line of three Richmond ½-in. Tyscrus 1 ft. from the top, bolted to vertical wales cantilevered from similar ties in the lift below, holds each panel. Wales are a pair of 12-ft. 3x6's, bolted together through spacer blocks at their ends to make a single slotted member extending over two panel heights. Lag bolts to the form ties fit in the slot. Thus, by loosening the tie in the latest pour, and removing that in the previous one, the wale is quickly slid upward to cantilever ahead for the following lift. The lower panel is then leapfrogged over the upper one and fitted in place for the next pour.

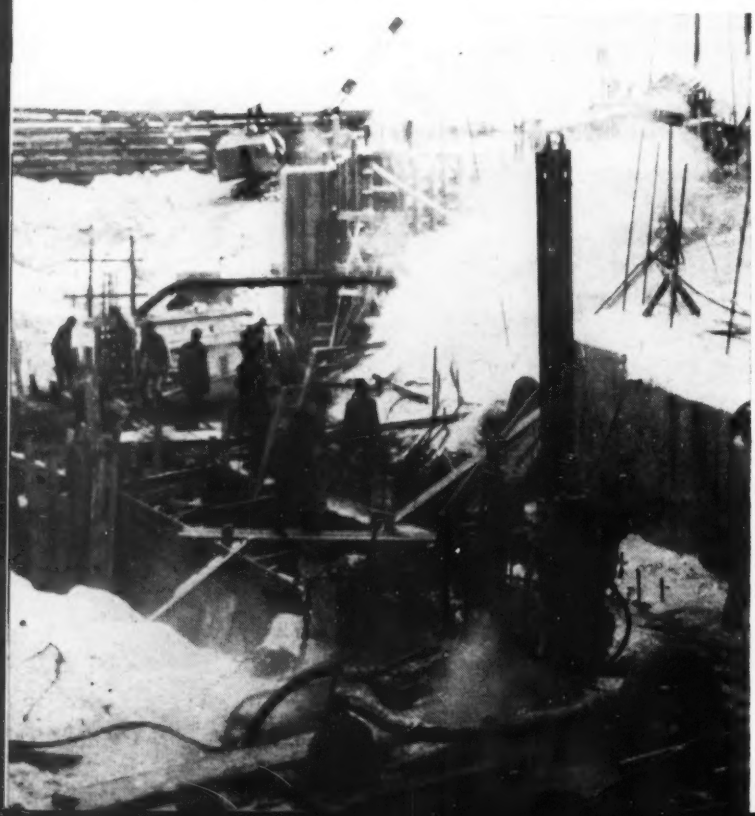
Forms are usually erected under cover of tarpaulins supported by extended reinforcing rods and timber framing. For 12 hr. before the pour, the inside of the covered form is warmed by steam lines, unit heaters or both, to thaw the surfaces of the preceding lifts and to melt any ice accumulation. Concrete is then pumped to the covered, warmed, dried and cleaned form, where it is spaded around the edges (to eliminate surface bubbles) and vibrated in the middle. When concrete is placed alongside rock or an earlier pour, that surface is heated with live steam as the concrete rises against it.

Concrete is protected for 3 days, either by perforated steam lines running around the base of the forms under the tarpaulin cover, or by ILG and Nelson fan-type steam unit heaters. With the latter, water is applied as needed to prevent excessive surface drying.

Despite below-zero temperatures, water is circulated through the dam's larger pours to dissipate heat of hydration. Twenty-four hr. after placement, river

Grout holes are drilled... And filled...

Ingersoll-Rand wagon drill sinks grout hole through foundation rock while Union Iron Works grout pump fills previously drilled hole.



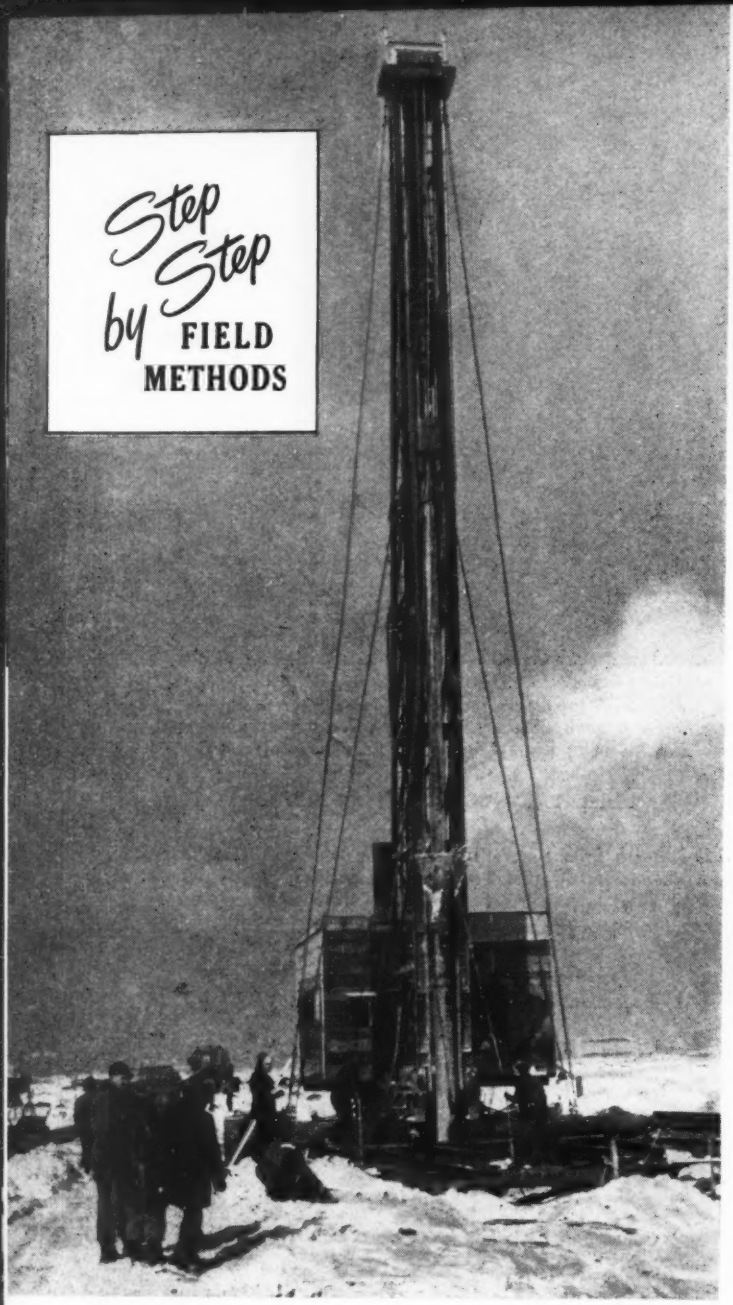
water is pumped through 1¼-in. pipes on 5-ft. centers in a single coil at mid-height of the lift, and the pour cooled for 8 or 9 days.

Sanders Engineering Co., Portland, contractor for the Union Falls project, and Nepsco Services Inc., Augusta, design and supervising engineers, are doing a beautiful job in the face of the worst weather in years. But no amount of steam and cold weather protection can turn Maine's bitter winter into good construction climate, so direct unit costs are somewhat high. However, added expense is more than compensated for by savings in overhead, and Central Maine Power Co. will get its hydro plant a year sooner. Running this cold job is a pair of hot construction men: Morris Rogers, superintendent for Sanders; and Karl Whitcomb, resident engineer for Nepsco.

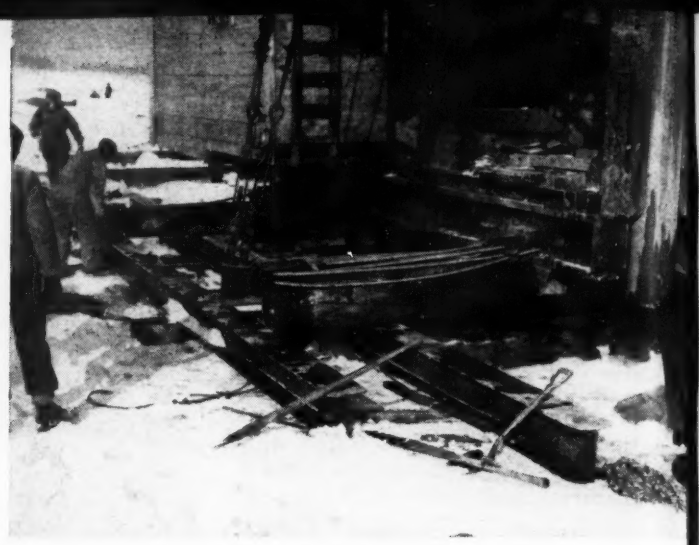
TARPAULIN COVERS are draped over top and sides of completed pour to confine steam which flows from perforated pipes around base of forms. Pour is warmed and cured for 3 days. More than an acre of tarps helps protect winter construction project.

ICY VAPORS (below), rising from diversion channel through project and steam from concreting operations almost obscure damsite, but construction continues. Suspension bridge at right carries Pumpcrete line across diverted Saco River. American guy derrick, rated 10 tons at 90-ft. radius, handles lifts in deep foundation area at left end of dam; later will set power-house equipment.

Step by Step FIELD METHODS



GREY WINTER SKY is pierced by tall pile rig whose leads tower 75 ft. over cold, snowy Boston airport to place foundation piles for terminal building. Only warm place on this icy job is next to 50-hp. steam boiler on inclosed rig.



1 ROLLER-SKID RIG is positioned for driving. Piledriver rests on two 14-in.x25-ft. concrete-filled steel rollers riding on 12-in. steel beams that are in turn supported by 12-in. sq. timbers spanning foundation pit. Moves are slowed by deep snow.

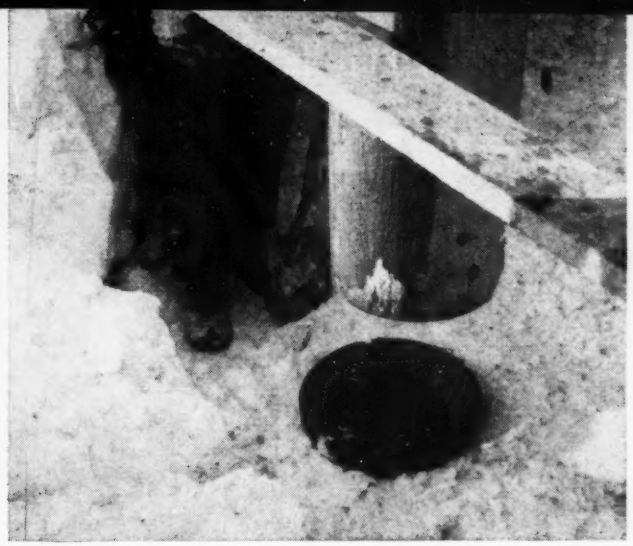
2 PILE POINT, or driving shoe, is 18-in. flat steel dish with 3-in. lip. Here, hemp and grease are daubed around point's rim as seal to prevent water infiltration during driving.

Plenty of Snow...

But Footings Go In at Boston Airport

HAMPERED BY DEEP SNOW and biting, frigid winds, the New England Foundation Co., Inc., Boston, is sinking 4,350 cast-in-place concrete piles this winter for the first section of a new multi-million dollar terminal at Logan International Airport, East Boston, Mass. Three steam piledrivers punch down through frozen ground to place up to 80 piles per shift, closely followed by a fleet of transit-mix trucks that fill pile shells and footing forms with heated concrete.

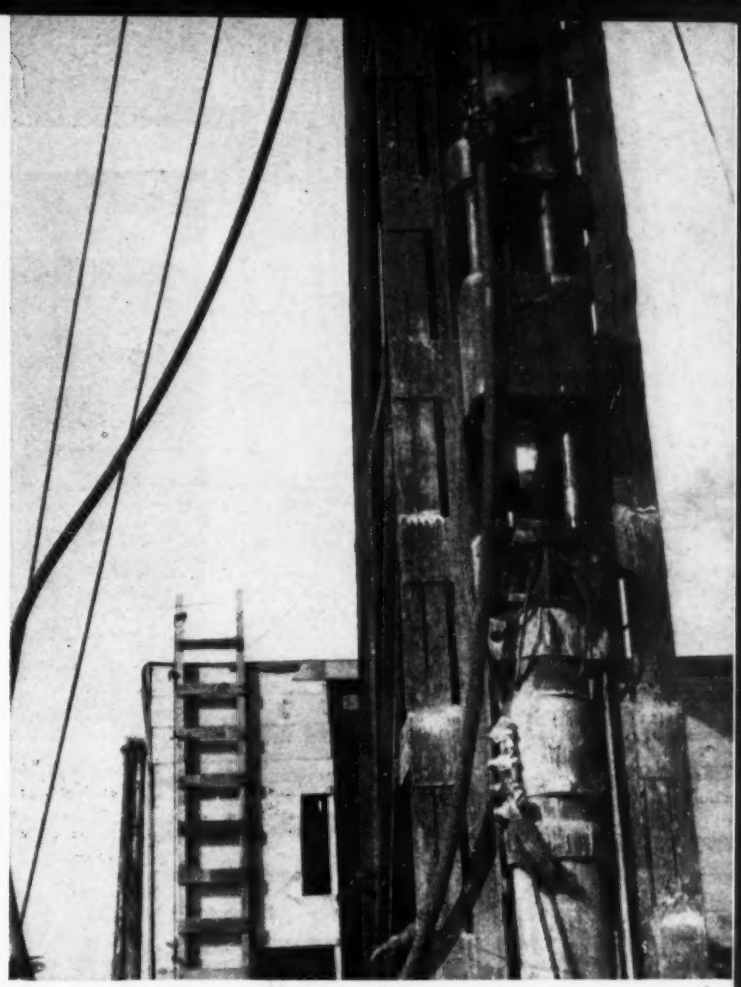
Shown step-by-step in accompanying photographs is the foundation construction procedure. Piles are all 12-in. dia. concrete-filled



3 DRIVE CASING, with closed-end mandrel inside, is centered in spotted pile point. Casing is 16-in. open-end steel pipe with ¾-in. wall.

spiral corrugated 18-gage metal shells resting on steel shoes driven by casing and mandrel to 20-ton bearing. Groups of from 7 to 30 piles, generally driven in a 3½x3½-ft. grid pattern, support each of 480 reinforced concrete footings for a 3,600-ft. section of a long apron building or passenger handling facility—first structure of the new terminal.

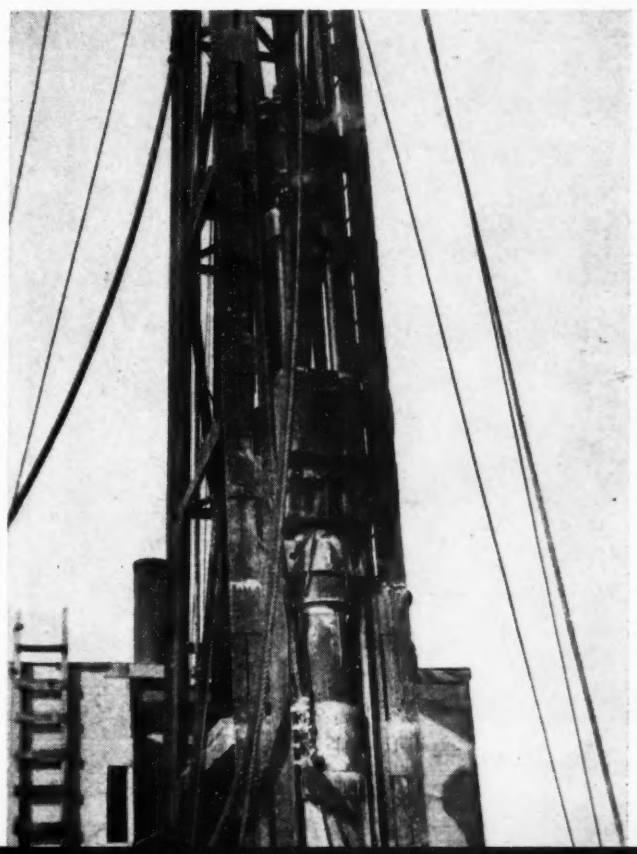
Airport and terminal are being built by the Massachusetts Department of Public Works, William H. Buracker, Commissioner. Both projects are under the Division of Waterways, of which Gen. Richard K. Hale is director and Everett N. Hutchins, chief engineer. On New England Foundation's $512,000 job, resident engineers are W. H. Skinner for the state; M. E. Keester for The Thompson & Lichtner Co., Inc., consultants. Clement Titcomb is contractor's superintendent.



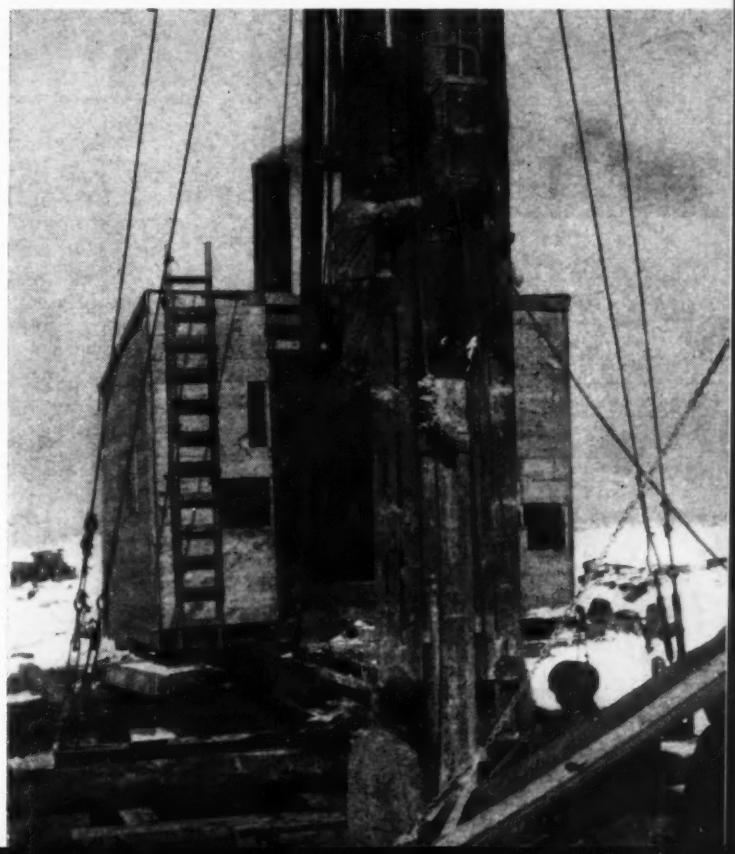
4 SINGLE-ACTING HAMMER, a Vulcan No. 1 with 5,000-lb. ram and 36-in. stroke, drives pile point to 20-ton bearing.

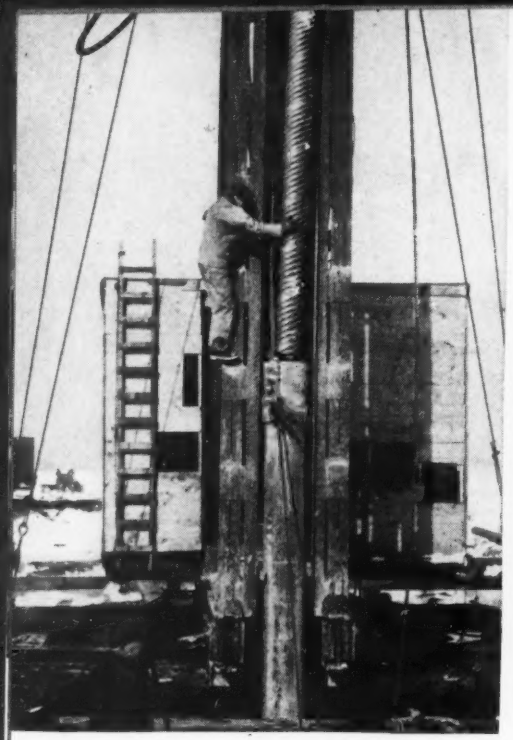
(Continued on next page)

5 MANDREL, driving head and hammer (below), all cabled together, are raised after pile point reaches required bearing in firm material underlying site. Drive casing remains.



6 CONCRETE SEAL (below) is poured to fill bottom 2 ft. of casing. Narrow funnel and bottom-dump bucket are specially built to fit between hammer guide rails on leads.





7 PILE SHELL is immediately dropped to top of concrete seal within casing. Shell is 12-in. tube of spiral corrugated 18-gage steel.

8 CASING IS PULLED after mandrel forces corrugated shell through concrete seal to bear on pile point. Shell will now be inspected and covered to keep out dirt and snow.

9 CONCRETE IS CHUTED and shoveled into pile shells burned off to correct grade. Foundation pit will be filled with 2-ft. layer of salt hay to prevent pile concrete freezing at zero temperatures.

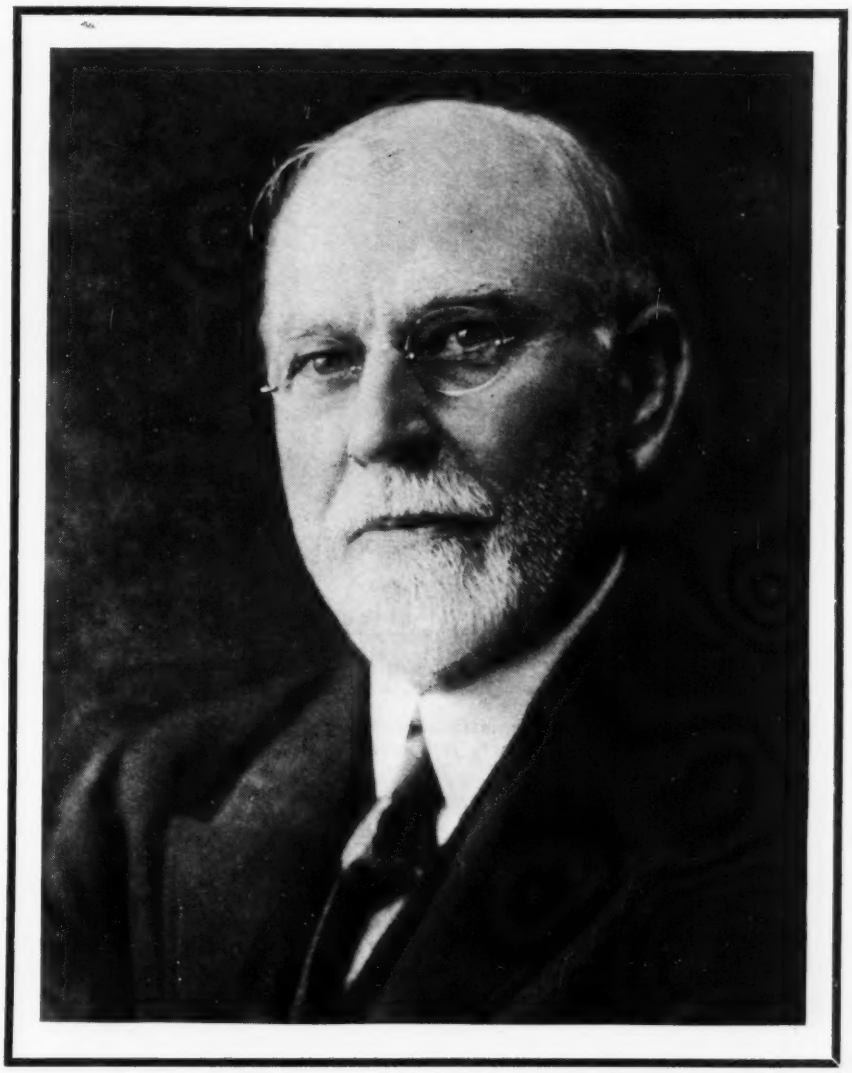
10 FORMS and reinforcing for pile cap are placed, then ice and snow are melted and subgrade thawed with Aeroil torch. Checking foundation before pour is W. H. SKINNER (right), resident engineer for Massachusetts Department of Public Works.

11 HEATED CONCRETE (below), a 6-bag 3,000-lb. mix with 2 to 4-in. slump, leaves batch plant at 100 deg. and is trucked 1 mi. to airport in Rex Moto-Mixers. Syntron vibrator works concrete around reinforcing and into form corners.

12 TARPAULIN TENT and pair of Florence oil-burning salamanders (below) maintain 50-deg. heat on pour for 5 days, after which form will be stripped to complete winter foundation construction.

James H. McGraw, 1860—1948

JAMES H. McGRAW, pioneer publisher, founder and honorary chairman of the McGraw-Hill Publishing Company, Inc., died at San Francisco, Calif., Feb. 21 in his 88th year. For 51 years he was actively engaged in technical publishing, building up a company that today publishes CONSTRUCTION METHODS and 33 other technical and business magazines. Subsidiaries of the company he founded include McGraw-Hill International Corp., McGraw-Hill Book Co., McGraw-Hill Catalog and Directory Co., McGraw-Hill Company of California and Newton Falls Paper Co.



Mr. McGraw was born at Panama, Chautauqua County, N. Y., Dec. 17, 1860. Upon graduating from State Normal School at Fredonia, N. Y., he became principal of a district school where he had been teaching during his college days. Meanwhile he had become daubed with printers ink as a reporter for the home-town weekly and a monthly publication, Country Side.

Started in 1884

In 1884 when his friends started *The American Journal of Railway Appliances* and purchased the magazine *Steam*, the lure of publishing pulled Mr. McGraw away from teaching, and he joined the new venture as a circulation salesman. When the company was threatened with financial disaster, he raised $1,000 on a life insurance policy, taking stock for this investment and for $1,500 owed him for commissions. Thus he entered publishing as an owner. The company prospered, bought *Electric Railway Journal*, and then split up, with Mr. McGraw taking over the new magazine, foundation of his publishing dynasty.

The McGraw Publishing Co. grew rapidly, acquiring new magazines and establishing a technical book company. A rival firm, also publishing both magazines and books and founded by John A. Hill, likewise prospered. In 1909 the two firms combined their book publishing activities, and in 1917, shortly after the death of Mr. Hill, the two firms merged into the McGraw-Hill Publishing Co.

When Mr. McGraw entered technical publishing he found no standards and few ethics in either editorial or advertising fields. He soon sensed the obligation of the publisher to set up editorial leadership to give the reader a working tool in his magazine, and to establish quality and high standards in advertising. He never veered from this early course throughout his career. His early maxim that a technical editor must wear out his shoes instead of the seat of his pants still prevails in the company.

As a keen business man, a philosopher, a rugged individualist and great believer in private enterprise, Mr. McGraw brought a new concept to technical publishing. He kept abreast of industrial expansion, buying or starting magazines in promising fields of industry. His greatest concern at all times was service to the readers and editorial leadership in the fields represented by his various magazines. He also found time to take an active part in civic and public life and technical societies, and was the recipient of numerous awards. He retired in 1935 and became honorary chairman.

His four sons are all active in the Company. James H. McGraw, Jr., is president and Chairman of the Board. Curtis W. McGraw is senior vice-president and treasurer. Donald C. McGraw is vice-president, and Harold W. McGraw is vice-president in charge of the home office building in New York.

Flexibility Marks Allatoona

1 PROCESSING of quarry-run material starts with trucks dumping on to apron feeder that supplies primary jaw crusher. Crusher-run, maximum 8 in. size, goes to first surge pile at left.

DESIGNED FOR FLEXIBILITY, high capacity and uninterrupted production of end products, the Allatoona Dam aggregate plant is an outstanding example of big installations necessary to produce concrete materials under precise specifications for large dams today. Features of the plant are simple layout, two surge piles for partly-treated material, two towers containing all processing screens, pile storage over reclaiming tunnels for the five final sizes of stone and sand, and additional dead storage for processed stone. For normal procedure, the plant is set for definite proportions of the five sizes of materials, but these proportions can be instantly varied by switching and bypassing certain processing operations.

4,000-Ton Plant

The plant, rated at 4,000 tons per day, was designed, and is being operated by Lambert Bros., Knoxville, Tenn., and Kershaw Mining Co., Birmingham, Ala., as subcontractors for National Constructors, Inc., who hold a $13,200,000 contract for Allatoona Dam. The 200-ft. high concrete dam, containing 500,000 cu.yd., is being built as a flood control project on Etowah River near Cartersville, Ga., by the U. S. Corps of Engineers under the Mobile District. Preliminary work on the job was described in *Construction Methods* in May and June, 1947.

All aggregate comes from a quarry, where the plant is located, 15 mi. from the dam by highway. Rock source is a dolomite limestone containing roughly 75 percent calcium carbonate, 21 percent magnesia and 4 percent silica. Four sizes of stone produced are: No. 4 to ¾ in., ¾ to 1½ in., 1½ to 3 in., and 3 to 6 in. Manufactured sand must meet the following sieve analysis:

Sieve size	*Percent passing*
⅜ in.	100
No. 4	95 to 100
No. 8	80 to 90
No. 16	55 to 75
No. 30	30 to 60
No. 50	12 to 30
No. 100	6 to 11

Layout of the plant is shown in the accompanying flow sheets, while the photographs show several details. After running the sand plant a few weeks, removal of surplus fines proved to be necessary, so a wet classifier and a dust separator were added at the terminal sand storage pile.

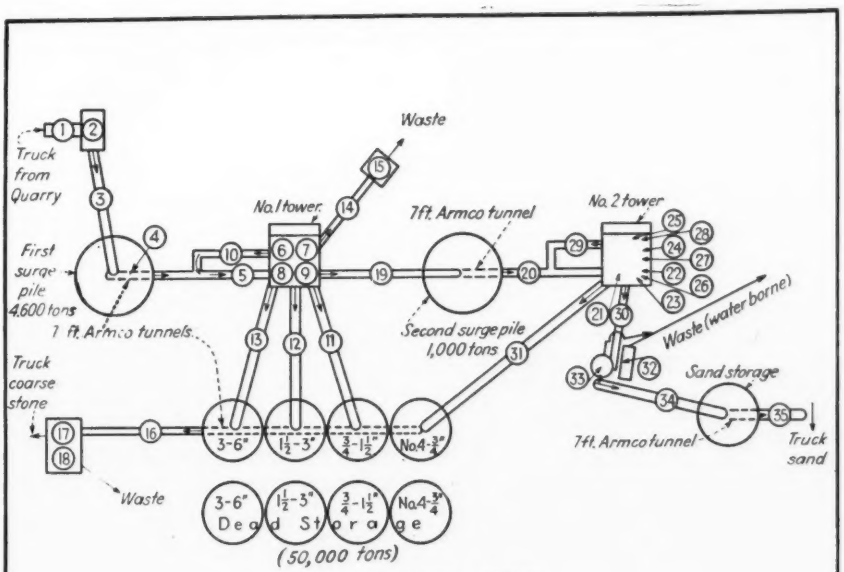
Production starts at the quarry by primary drilling with five wagon drills and secondary drilling with jackhammers, all supplied by an Ingersoll-Rand 1,500 ft. compressor. A 2-yd. Bucyrus-Erie shovel loads quarry-run stone into 10-yd. Euclid end-dump trucks for haul to the plant.

Plant Layout

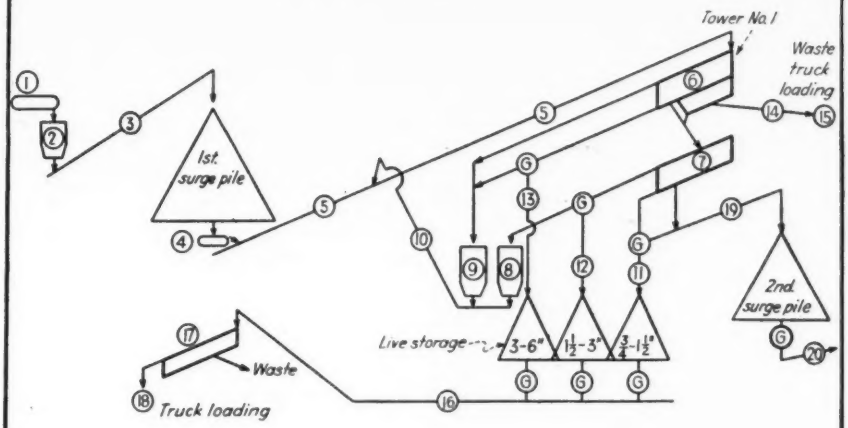
The general layout of the plant is relatively simple. From an apron feed, quarry-run stone is reduced to maximum 8 in. by a primary crusher, then passes by belt to the first surge pile of 1,400 tons live and 3,200 tons dead capacity. A belt in a reclaiming tunnel under this pile delivers all material to top of tower containing screen, cone and gyratory crushers. From

Aggregate Plant

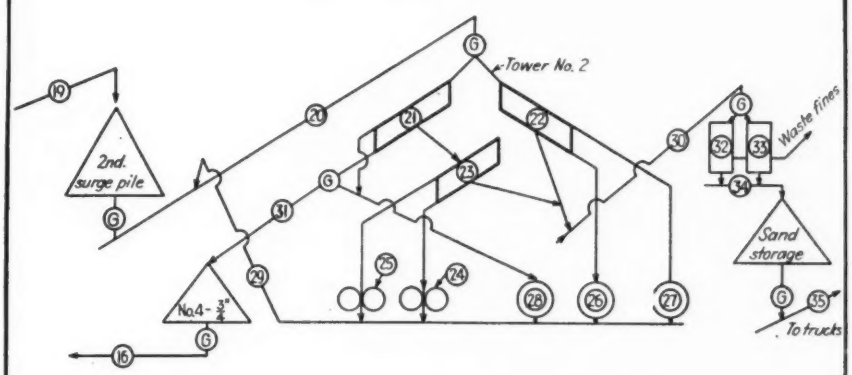
THIS IS THE THIRD ARTICLE in a series describing in detail large aggregate plants for big concrete dams. The plants though radically different in design and layout, are all about the same capacity, produce the same run of sizes of crushed rock, including manufactured sand, are designed and operated by subcontractors for the general contractor, are all located near the job they serve, and all furnish material for equal-yardage dams being built by the U. S. Corps of Engineers. This plant at Allatoona Dam in Georgia, the one described in January, '48, at Fort Gibson in Oklahoma, and the Fall River Dam plant in Kansas, described in July '47, are fine examples of modern engineering and equipment applied to precise-control large-scale aggregate production.



GENERAL PLANT LAYOUT
(Not to scale)



PRIMARY AND LARGE STONE PROCESSING AND LOADING



FINE AGGREGATE PROCESSING AND LOADING

←

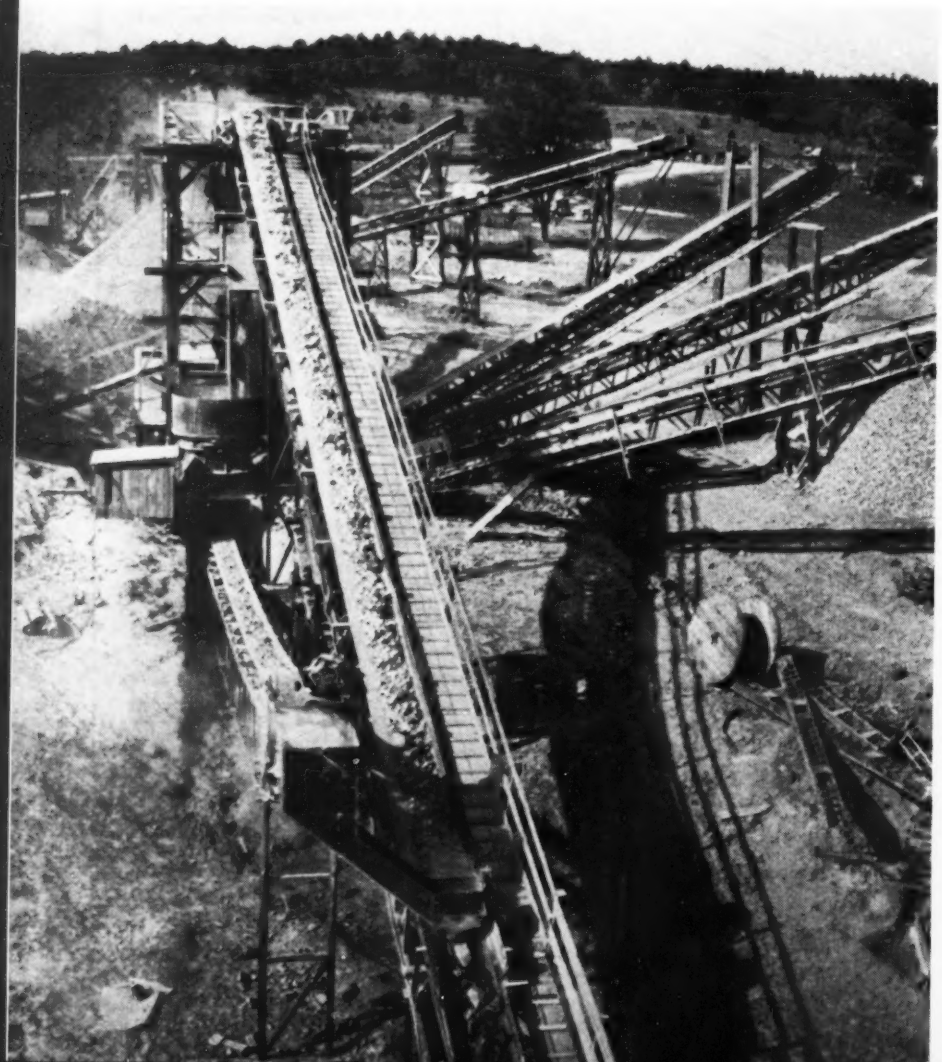
FLEXIBILITY in processing operations, surge piles for intermediate storage, and large-volume live storage of finished products are features of Allatoona Dam aggregate plant. These flow sheets show simple layout of high-capacity plant producing five sizes of aggregate, including sand.

LEGEND

G. Gate or splitter
1. Telsmith apron feeder, 4x14 ft.
2. Telsmith primary jaw crusher, 30x42 in.
3. Belt conveyor, 36 in.x115 ft.
4. Telsmith apron feeder, 4x14 ft.
5. Belt conveyor, 36 in.x159 ft.
6. Allis-Chalmers 3-deck vibrating screen, 5x12 ft.
7. Robins Gyrex 2-deck vibrating screen, 5x12 ft.
8. Nordberg cone crusher, 48 in.
9. Telsmith gyratory crusher, 16B.
10. Belt conveyor, 24 in.x101 ft.
11. Belt conveyor, 24 in.x93 ft.
12. Belt conveyor, 24 in.x72 ft.
13. Belt conveyor, 30 in.x74 ft.
14. Belt conveyor, 18 in.x33 ft.
15. Storage bin, 30 tons
16. Belt conveyor, 36 in.x305 ft.
17. Pioneer washer vibrating screen, 4x12 ft.
18. Storage bin, 60 tons
19. Belt conveyor, 30 in.x105 ft.
20. Belt conveyor, 24 in.x106 ft.
21. Telsmith 2-deck vibrating screen, 5x12 ft.
22. Telsmith 2-deck vibrating screen, 5x12 ft.
23. Tyler Hummer 2-deck vibrating screen, 4x10 ft.
24. Austin-Western roll crusher, 30x18 in.
25. Austin-Western roll crusher, 40x22 in.
26. Cedar Rapids hammer mill, 30x33 in.
27. Pennsylvania impactor crusher, CF-3-38
28. Cedar Rapids hammer mill, 40x33 in.
29. Belt conveyor, 20 in.x73 ft.
30. Belt conveyor, 18 in.x51 ft.
31. Belt conveyor, 18 in.x112 ft
32 Telsmith screw washer (classifier) 5x14 ft.
33. Sturdevant dust separator, 10 ft.
34. Belt conveyor, 18 in.x94 ft.
35. Belt conveyor, 24 in.x95 ft.

2 DEAD STORAGE at first surge pile is converted to live storage by bulldozer pushing material within reach of apron feeder in reclaiming tunnel. Center belt is feeding into screening and crushing operations at Tower No. 1. Belt conveyors at right load to live storage of finished sizes of coarse aggregate.

3 RECLAIMING BELT (below) leads from tunnel in first surge pile to top of Tower No. 1, containing screens and crushers for finishing three largest sizes of stone, finally delivered to storage by conveyors at right. Belt at left returns crusher-run from Tower No. 2 back through cycle for further processing.



here the three largest sizes of finished stone go direct by belts to finished storage piles over a long loading tunnel. Waste material can be drawn off at the tower, while everything under 1½ in. passes on to a second tower containing screens, roll crushers, and hammer mills.

From this tower small stone, No. 4 to ¾ in., goes to stockpile alongside large stone storage, while manufactured sand goes through either a washer or dust separator and on to a sand storage pile. Here a tunnel belt loads directly into trucks for a haul to the dam. Recovered dust is sluiced off as waste. Alongside each final stone storage pile is a corresponding dead storage pile, built up and depleted, as necessary, by a crane-clamshell unit. From the reclaiming tunnel under the live storage piles, each of the four coarse aggregate sizes is loaded out, one size at a time, through a washer screen and truck storage bin for haul to the dam.

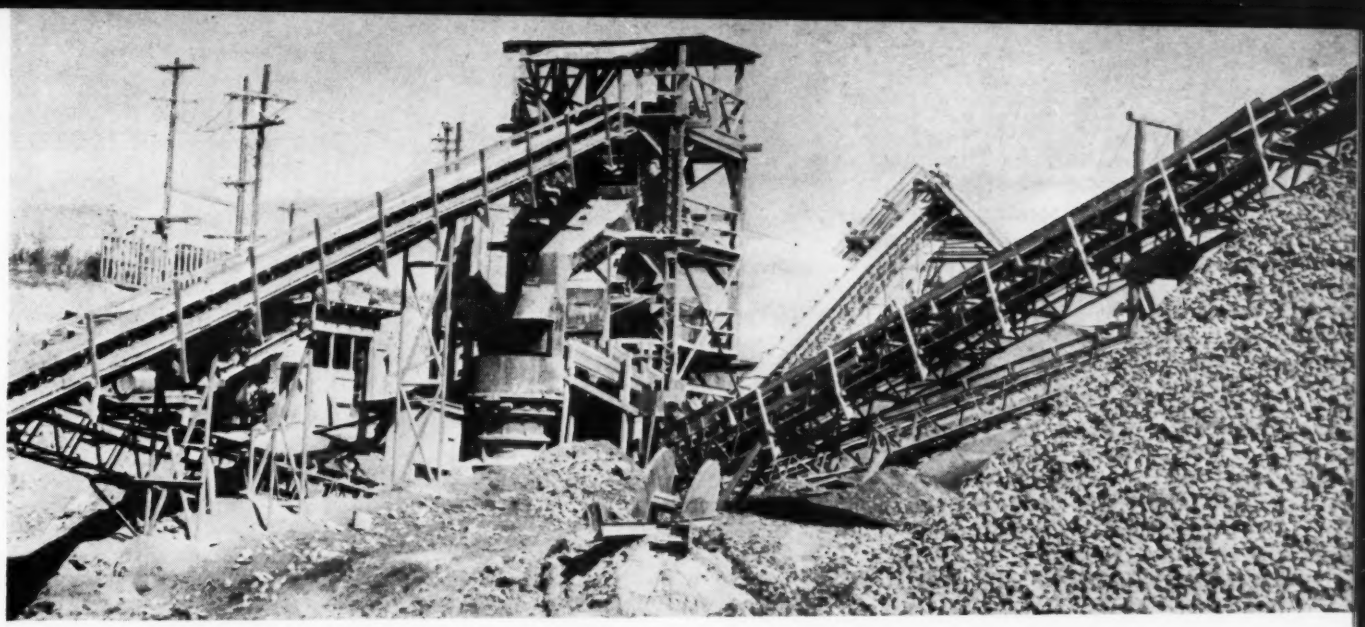
Detail Processes

In describing the detail processing of stone, each mechanical unit will be designated by a number in parenthesis corresponding to its number in the flow sheets and legend. Sizes of units and belt lengths are shown in the legend. All conveyors are Goodyear belt.

Quarry-run stone is dumped from trucks on to a Telsmith apron feeder (1) discharging into a Telsmith primary jaw crusher (2) for reduction to 8-in. maximum size. A 36-in. belt carries the crusher run to the first surge pile of 1,400 tons live and 3,200 tons dead storage. A Telsmith apron feeder (4) loads a belt (5) inside a 7-ft. Armco reclaiming tunnel for feeding Tower No. 1 containing the first group of screens.

This tower contains an Allis-Chalmers triple-deck primary screen (6) a Robins Gyrex double-deck secondary screen (7) a Nordberg cone crusher (8) and a Telsmith gyratory crusher (9). Here the flexibility of the plant really becomes apparent.

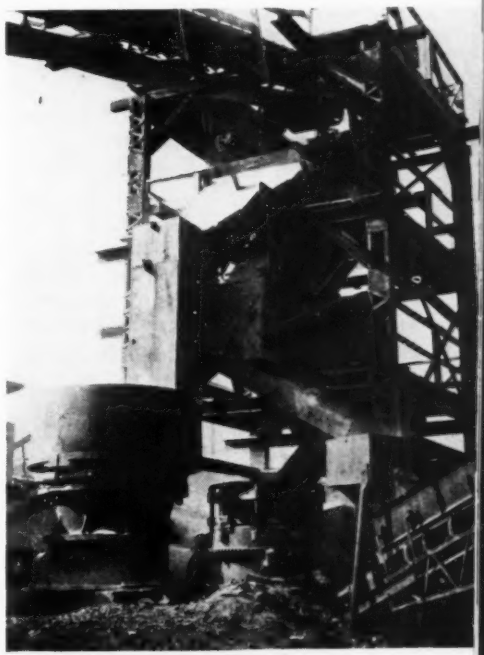
All stone from the primary stockpile is delivered to the primary screen, and all plus 6-in. material is chuted from the top deck to the gyratory crusher, reduced to 6 in. and passed back to belt 5 by belt 10, and thence back to the screen. From the second deck 3 to 6-in. stone either goes by



4 PROCESSING EQUIPMENT for production of three largest sizes of stone is concentrated in Tower No. 1. Belt at left is reclaimer from first surge pile, those at right feed piles of finished coarse stone over loading-out tunnel. Center belt takes all small stuff to second surge pile, from whence it is processed into small stone and sand.

belt (13) to the finished stockpile or, by gate control, back to the gyratory crusher for further reduction. Minus 3-in. stone passes to the bottom or scalping deck of the primary screen. Material smaller than 3/8 in. is scalped out as waste, removed over belt 14 to a 30-ton storage bin (15).

Material retained on the top deck of the secondary screen (7) normally goes by belt (12) direct to the 1½- to 3-in. finished storage, but it can be bypassed by a gate back into the cone crusher for further reduction and return through the whole cycle by belts 10 and 5. Stone retained on the second deck can be sent direct to the ¾- to 1½-in. finished stockpile by belt 11, or can be shunted by gate, along with everything passing the lower deck, to belt 19 leading to the second surge pile, good



5 IN SIMPLE ARRANGEMENT of Tower No. 1 equipment, two big screens at top feed direct by chutes to finished storage belts or to cone and gyratory crushers. Gates in chutes permit shifts in flow to vary proportions of different sizes of materials.

6 FROM SECOND SURGE PILE (below), hidden behind plant, all small materials go into Tower No. 2 containing three sets of screens and five crushers and hammer mills for production of sand and No. 4 to ¾-in. stone. Sand stacker is at extreme left, receiving finished product from wet classifier and dust separator in left foreground. Highest belt at left leads to small-stone storage. Recovered dust from sand is sluiced away through ditch in center foreground.

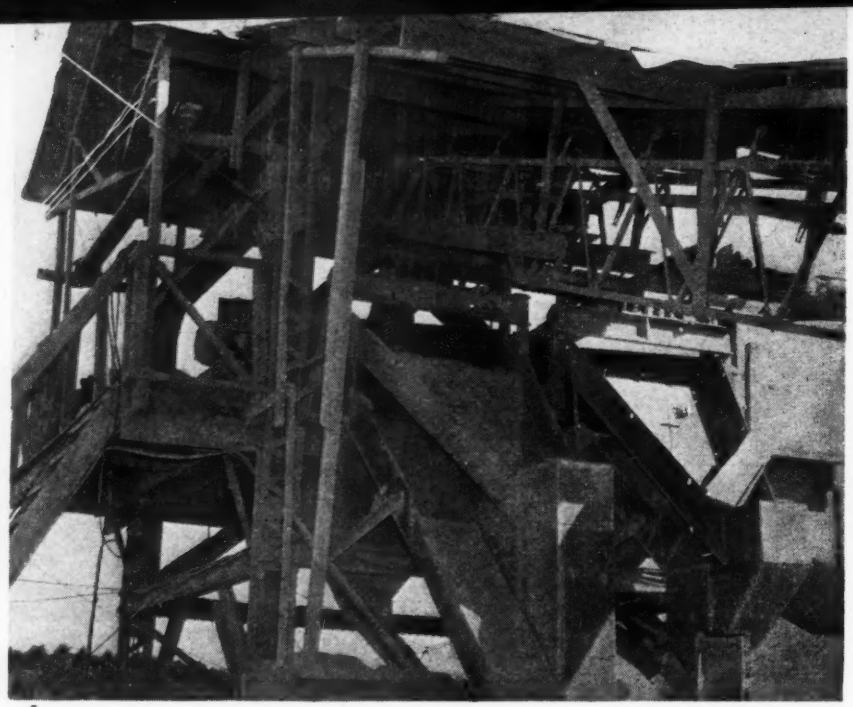
for 1,000 tons storage. This pile furnishes material for No. 4 to ¾-in. stone and all sand.

An adjustable Robins gate in a 7-ft. Armco tunnel under the pile feeds a reclaiming belt (20) leading to top of Tower No. 2 which houses three sets of screens, two roll crushers, two hammer mills and an impactor crusher. A splitter on top of the tower divides the belt discharge about equally to two Telsmith double-deck screens (21) (22). Material retained on top of screen 21 goes through a Cedar Rapids hammer mill (28) and thence by belt 29 back to supply belt 20 for another trip through the cycle. Stone retained on the lower deck of screen 21 is finished No. 4 to ¾-in. size, and goes direct by belt 31 to finished storage alongside the larger-stone piles, or it can be shunted through hammer mill 28 for further reduction.

Small stone passing the lower deck of screen 21 falls onto a double-deck Tyler Hummer screen (23). Material retained on the two decks goes through Austin-Western roll crushers (24) (25) to belt 29 for return through the entire cycle. Small stuff passing the lower deck of screen 23 goes direct into the sand line via belt 30.

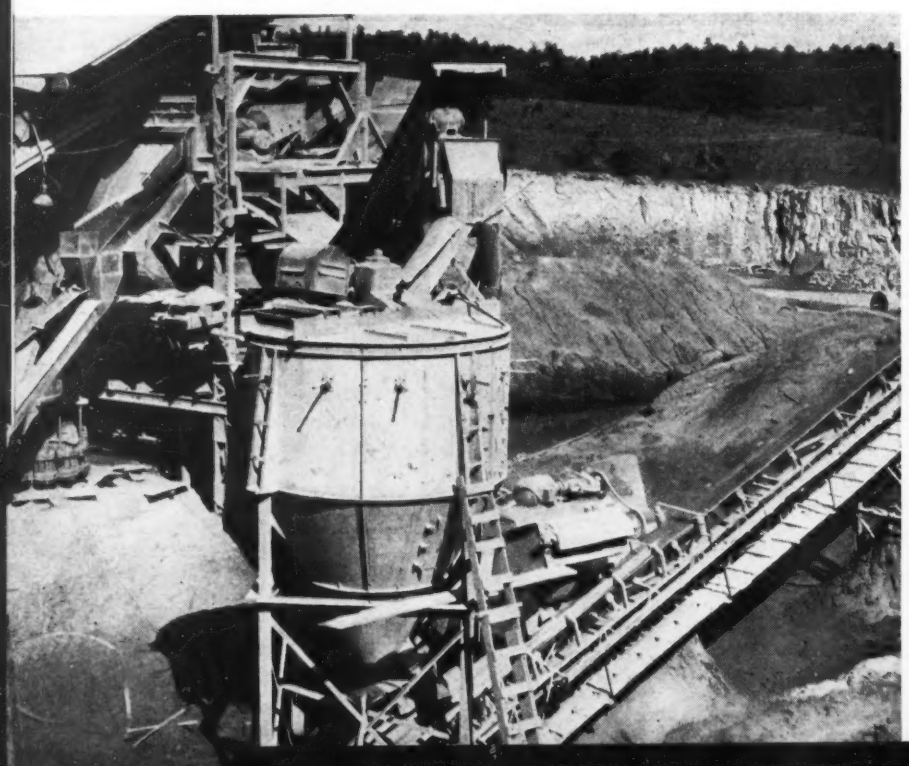
Meanwhile, the other half of the material coming off surge pile supply belt 20 goes through screen 22, and flow off the top and second decks is chuted to a Pennsylvania impactor crusher (27) and a Cedar Rapids hammer mill (26), respectively. Stone passing the lower deck of screen 22 goes to sand belt 30, while the run from the hammer and impactor crushers is carried by belt 29 back through the cycle in Tower No. 2.

Sand from belt 30 is split by a gate into a Telsmith screw washer (32) and into a Sturdevant dust separator (33) for removal of excess fines, which are carried off by water as waste. Finished sand is carried to stockpile by belt 34, from whence it is reclaimed by a gate in a 7-ft. Armco tunnel discharging on to belt 35 for direct loading into trucks.



7 HEART OF FINE AGGREGATE production is Tower No. 2, with three screens at the top (above), feeding crushers below. Shown in view at right are a cone crusher (later replaced by a roll crusher), hammer mill and impactor crusher for producing sand.

8 DUST IS REMOVED from manufactured sand by air separator (below) and wet classifier (behind cone) and then clean sand goes to storage over belt at right. This is also another good view of Tower No. 2.



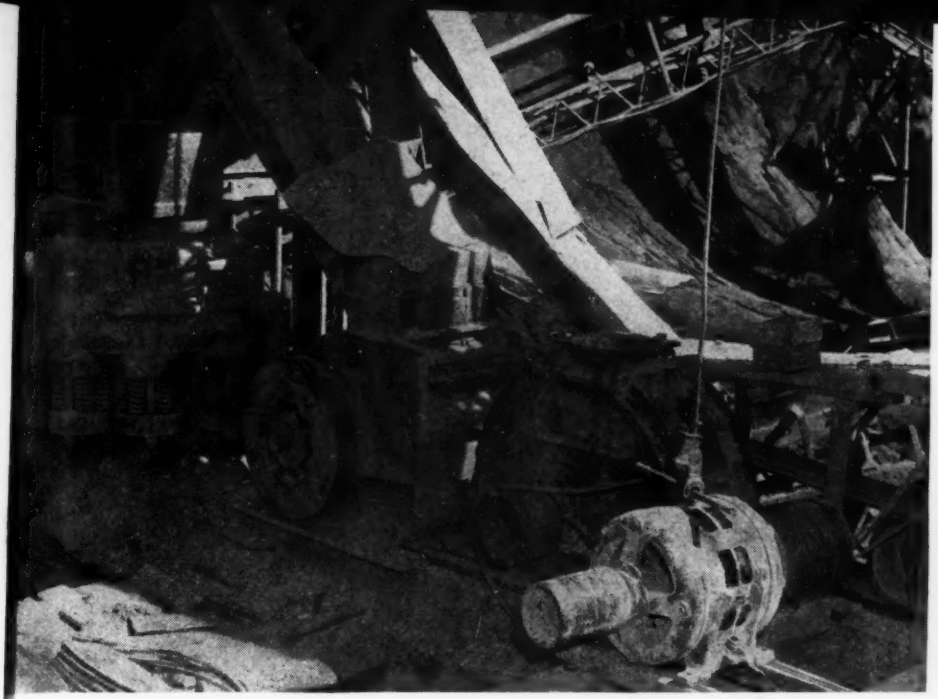
Stone Reclaiming

All four sizes of coarse stone are reclaimed by a single 7-ft. Armco tunnel through gates under each pile discharging on to belt 16. Reclaimed stone, one size at a time, is discharged through a Pioneer washer screen, (17) which rejects any fine material as waste, and into a bin (18) for truck loading. Total live storage over the tunnel is 3,000 tons, augmented by some 50,000 tons total dead storage in piles alongside, built up or unloaded, as desired, by a 3-yd. Lima clamshell crane unit.

Aggregate Costs

Total waste in the plant, averaging 25 percent of material quarried, is limited to material removed by scalping, 15 tons per hr., and dust, amounting to 20 tons per hr. Cost of aggregate to the general contractor is $1.85 per ton delivered to the dam, of which 72c. represents hauling charges.

Haul to the dam, 15 mi. away, partly over job access roads, is by 20 Ford-Freuhauf trailer dump trucks of 12-ton capacity. At the



Another roll crusher and hammer mill are out of range of camera. Finished small stone goes direct to storage from one of upper screens. Gates in chutes permit variations in flow.

9 WOOD POLE BENTS support long conveyor flights.

dam is a series of five bunkers over a reclaiming tunnel, one for each size aggregate (not shown in flow sheet). Sand storage is five times as much as that for any size stone to permit drainage for at least three days before mixing. Total storage at the dam is 750 tons. A two-flight 30-in. belt, 450 ft. long, reclaims the stored material and feeds the mixing plant.

The mixing plant, erected high on the right abutment for cable-way delivery of concrete, consists of Blaw-Knox batchers and two 4-yd. Smith mixers, designed for 150 cu.yd. per hr. Bulk cement is trucked from a rail point 2 mi. away to storage bins holding 4,000 bbl. of portland cement and 1,400 bbl. of slag cement, to be used in

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10 RECLAIMING TUNNELS under surge piles and finished stock piles are built up of Armco tunnel liner plates in 7-ft. dia.

11 FROM LIVE STORAGE at right (below) all finished stone is reclaimed by belt in tunnel for loading out through washer screen plant in background. Dead storage at left, totaling 50,000 tons, is handled by crane and clamshell.

12 OVER THE HILL to mixers, aggregate takes final ride on belt conveyors from job storage bunkers.

proportions of 4 to 1, respectively. Darex air-entraining compound is added at the mixers.

T. D. Kelley of Birmingham, Ala., supervised erection of the aggregate plant. It is being operated under the general supervision of R. E. Burgess, general manager of the Kershaw firm, while J. B. Lambert is general superintendent in direct charge.

For the Mobile District, Corps of Engineers, Col. Joseph J. Twitty is district engineer and Charles A. Jackson is resident engineer. For National Constructors, Inc., William Evans is project manager and K. L. Parker is chief engineer.

Radio Keeps the Job Going

RADIO IS USED to good advantage in the work on Potholes Dam in the Columbia Basin. Here Phil Royer, construction superintendent for Lytle, Amis and Green, contractors on the work, is shown operating the transmitter in the central office. Six stations, one in the repair shop and five on job vehicles, are connected by this two-way system.

This 9,000,000 cu.yd. earth- and rock-fill dam has a crest length of 3½ mi. With borrow pits located even farther away, operations are spread out over a large area. The main advantage of the radio comes in facilitating repairs to equipment. If a shovel breaks down at one end of the job, repairs can quickly be sent for. Although the installation costs about $6,000, it has proved well worth while.

CHARLES M. UPHAM

IF ANY MAN deserves the title of father of the American highway industry, it is Charlie Upham, engineer-director of the American Road Builders' Association for the last 22 years, and promoter of good roads throughout his 40-year career. It was he who conceived the present multi-facet organization of A.R.B.A. after attending a desultory convention at Louisville in 1920.

Named director of the Road Show, thus becoming a member of the executive committee, Charlie worked out a new plan with the other leaders to replace the weak organization of that time. Though he did not take over as engineer-director for some six years, by that time he had formulated plans to set up separate divisions for manufacturers, contractors and various groups of highway and, later, airport officials. He also established a Pan American division to take in Latin American roadbuilders.

Probably his greatest contribution to highway planning and scientific advancement was the naming of numerous technical committees within the divisions. These committees, meeting year after year, have done much to bring our great highway system into being.

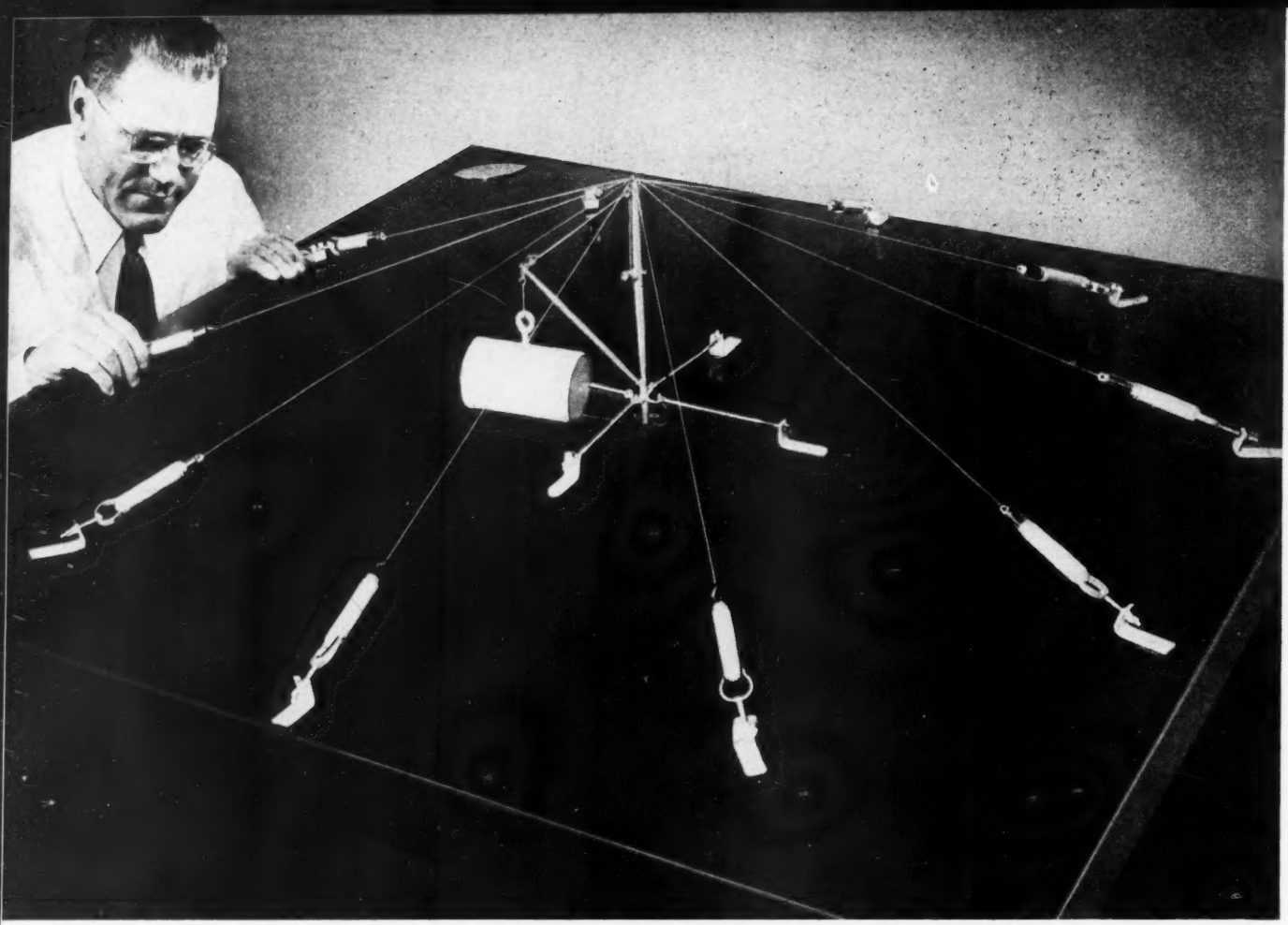
Charles M. Upham was born in Stoughton, Mass., March 6, 1886. He graduated in civil engineering from Tufts College in 1908, and later received advance engineering degrees from Tufts and the University of North Carolina. After a year with the Charles River Basin Commission (Boston) and three years with the Massachusetts Highway Commission, Charlie went to Delaware as testing engineer for the Coleman du Pont Road. In 1915 he was named chief engineer of the road, and upon creation of the Delaware Highway Commission in 1917 was appointed its chief engineer. In this position he built up the engineering department from scratch.

In 1921 he went to North Carolina to organize the engineering department for the State Highway Commission, and directed a 150 million dollar highway program. Meantime, he also served as consulting highway engineer for Mexico, the start of his Latin America activities that eventually took him to Cuba, Guatemala and Salvador.

Charlie resigned from the North Carolina position in 1926 to become engineer-director of A.R.B.A. He has been active in highway promotion, legislation, research, financing and planning, international conferences, and in correlating work of the various divisions and technical committees. He serves on many outside committees and as consultant to numerous public agencies. And, of course, he has an important part in planning the A.R.B.A. Road Show displays of construction equipment, the greatest of which will be held as an outdoor exhibit at Soldier Field, Chicago, next July 16-24.

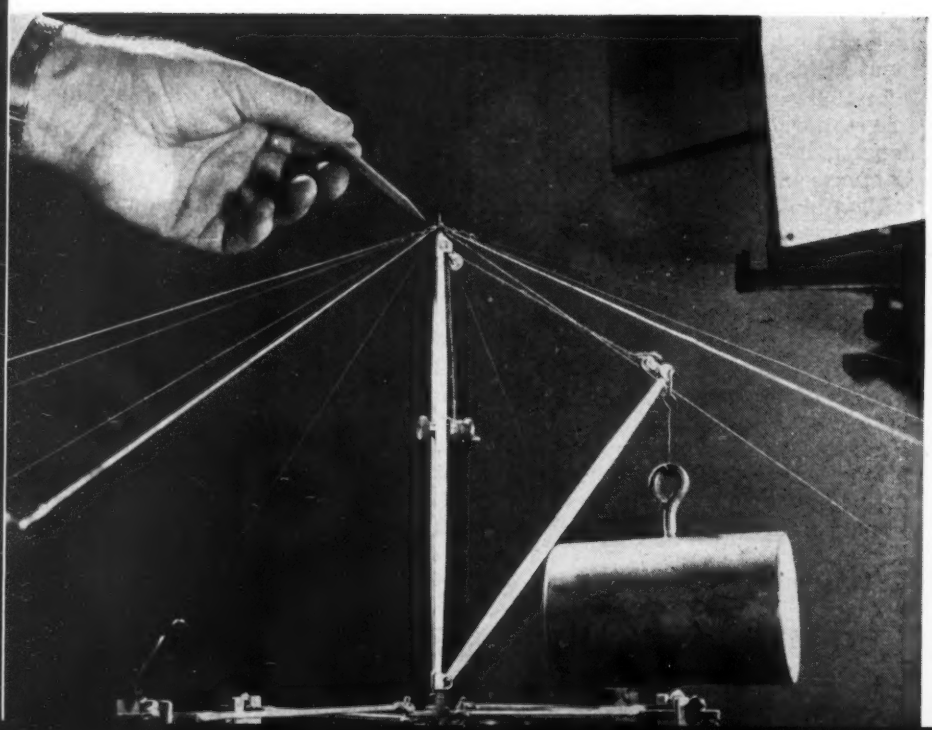
During the war he directed the association's job of helping organize 14 heavy maintenance units for the Ordnance Department, working through the state highway departments. He personally acted as recruiting officer for the last part of this program.

Charles M. Upham has received many honors and awards, including the 1946 Bartlett Award for "outstanding contribution to highway progress." But the highways of this country are his greatest monument, for he has had so much to do with their creation.



MINIATURE GUY DERRICK eliminates rig design headaches of M. W. Kellogg Co.'s construction department. Model predicts guy tension and mast kick under all conditions of rigging and loading.

Model Guides Guy Derrick Set-ups



NO TOY, but a useful tool, is the table-top model guy derrick developed by the construction department of the M. W. Kellogg Co., New York, to guide design of the big rigs which handle heavy lifts on their refinery construction jobs. The pint-size derrick gives big results. It not only eliminates guesswork and tedious calculations for guy tension and mast kick, but has also resulted in safer derricks at lower cost. Tensions predicted by

← SCALE MODEL has no hoist line as tests are made under static loads. Derrick is swung by hand, and boom is peaked by topping lift to drum on mast.

the model have been checked in the field to within 1 percent.

Scaled 1/16 in. to the foot, and with each pound of load equivalent to 10 tons, the model is mounted on a 4-ft. square table. Pivoted boom and rotating mast are steel; rigging is piano wire. Guys terminate in accurately calibrated spring scales fastened to the table top, and the mast foot block is held by eyebolts. Tension lines with spring scales can be substituted for the latter to measure mast kick.

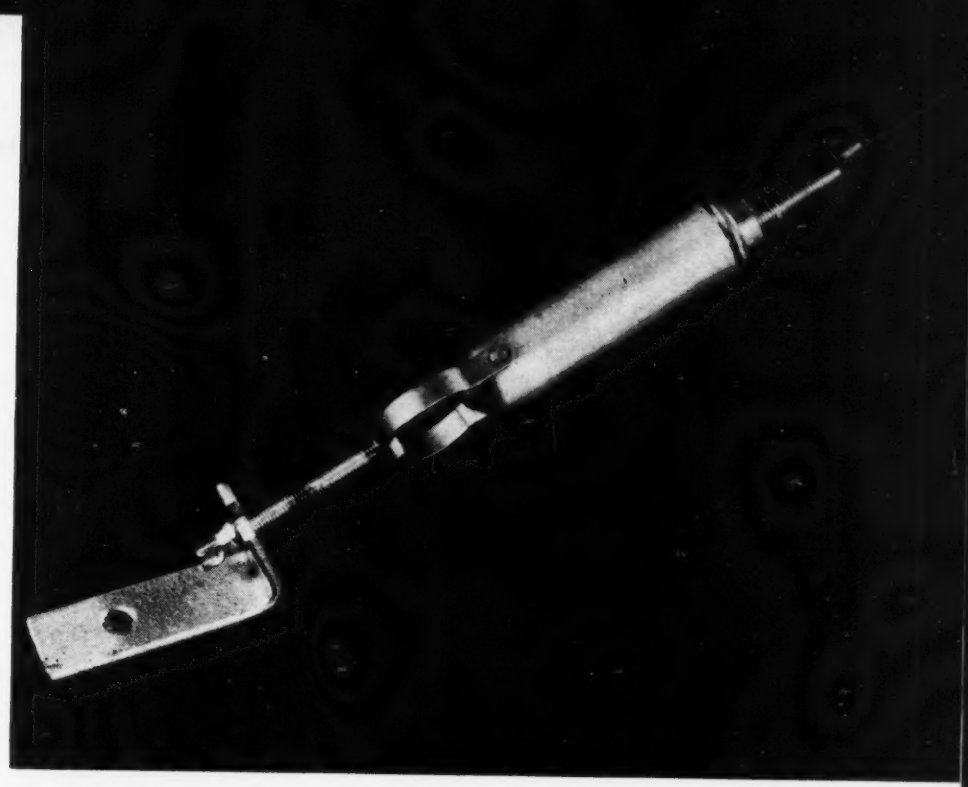
Data Easily Obtained

Data for determining proper guying and foot-block bracing is obtained by loading the model and reading the scales. Tensions are read to 1/100 lb.—equivalent to 200 lb. on a full-size derrick.

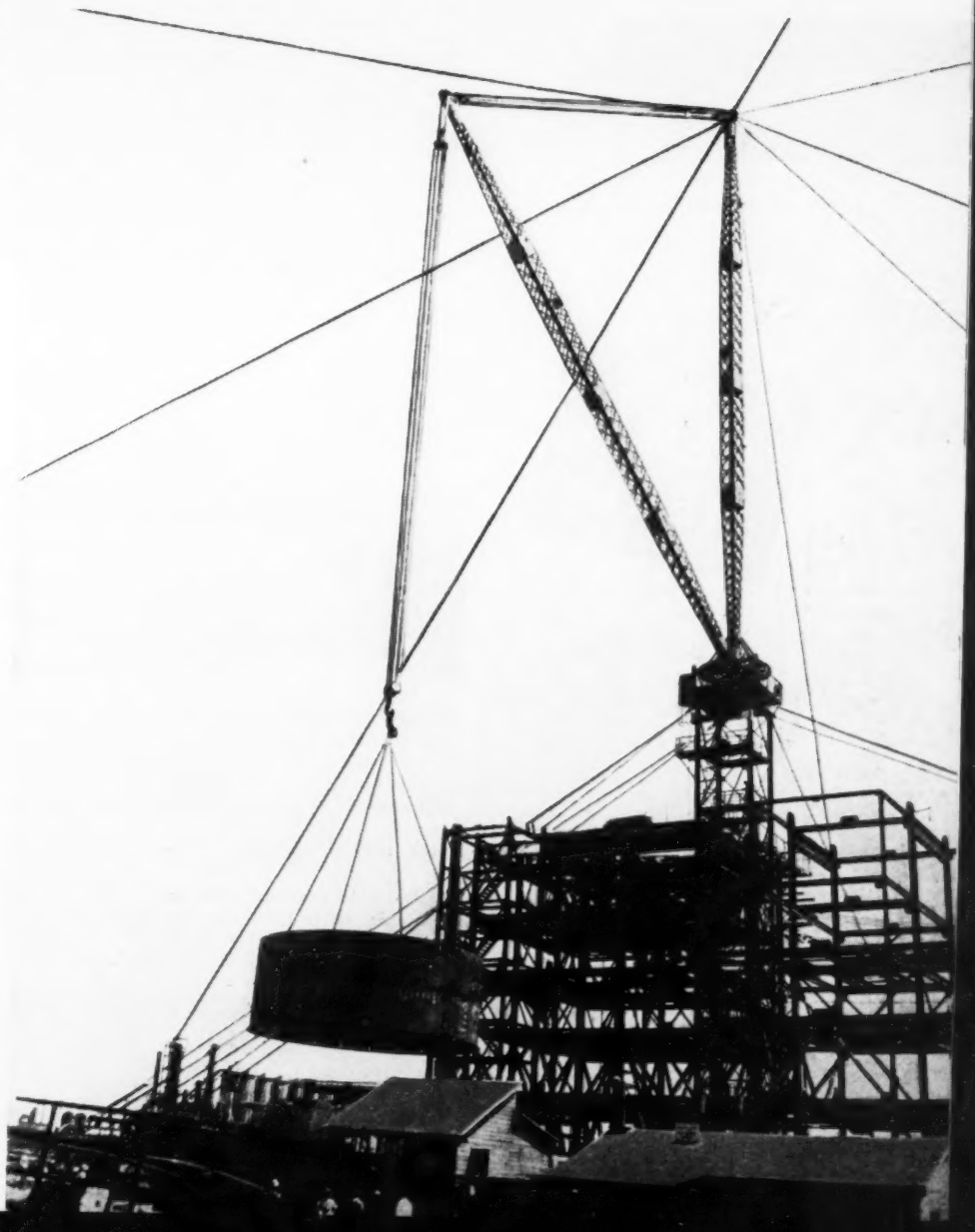
It has been found that with a ten-guy rig, most of the load usually comes on three of the wires; with eight guys, it comes on two. In many cases a derrick with ten small guys has the same strength as one with eight larger guys—and at a saving in wire rope cost. Smaller guys, through the model's elimination of overdesign, also result in less dead load on the rig, lowered freight between job sites and greater ease of erection, dismantling and shipping.

Tough Set-ups Simplified

The miniature derrick is particularly useful where the number, spacing or length of guy wires must be varied because of extraordinary terrain or interfering structures. Quickly set up to simulate any field conditions, the model accurately predicts derrick behavior. Thus it makes Kellogg's unusually difficult lifts as safe as their ordinary ones.



SPRING SCALE reads model guy tension, directly proportional (1:20,000) to that which may be expected in full-size rig.

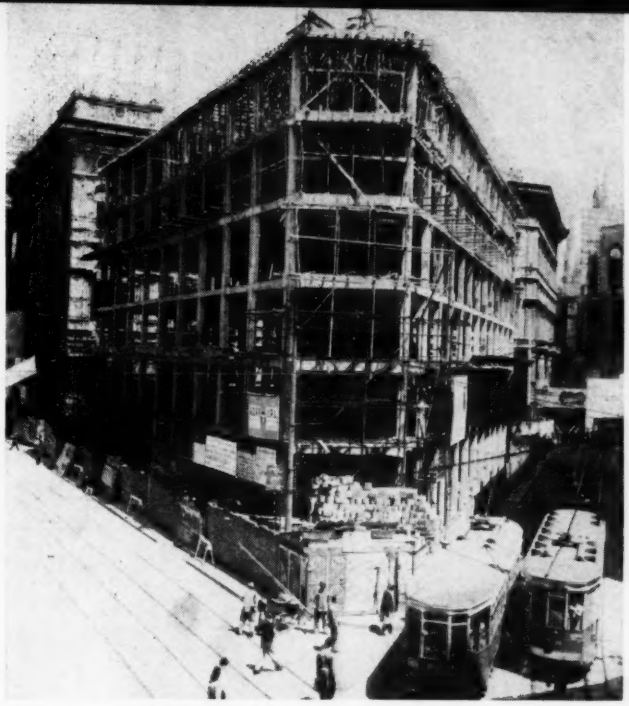


IN THE FIELD, after model tests have settled all doubts about safety, 100-ton guy derrick hoists regenerator skirt for Fluid cat-cracking unit at Whiting, Ind., refinery. Guy derrick on 75-ft. pedestal handles all work from one setting; eliminates multiple moving of gin poles that formerly made heavy lifts.

PENSTOCKS jutting out of foundations like long fingers mark rapid progress in building Allatoona Dam on Etowah River in Georgia by National Constructors, Inc. (See story on p. 90, this issue). While blocks rise in main dam within first cofferdam, work also progresses on powerhouse at extreme right and start of second cofferdam enclosure in foreground. Draft tube forms parked on terrace in background are ready for power units.

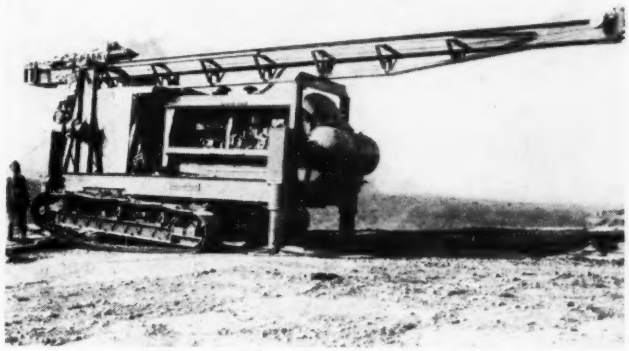
ENGINE ON THE WING—11,300-lb. Caterpillar diesel unit, claimed to be the largest and heaviest cargo ever carried by scheduled airline, is flown from New Orleans to El Salvador in few hours to replace broken-down engine in Santa Tecla water pumping plant, thereby assuring epidemic and fire protection for 50,000 city dwellers. Here, truck crane and Hyster lift-truck team up to load engine for flight.

INVITATION TO ROAD SHOW is delivered in person to President Truman by ten members of American Road Builders Association (below) which holds equipment exhibit in Chicago July 16-24. Lined up for photograph are (left to right): THOMAS J. KEEFE, BERT WHITE, PROF. A. DIEFENDORF, JENNINGS RANDOLPH, THOMAS CALLOWAY, PRESIDENT TRUMAN, CHARLES M. UPHAM, W. B. GREENE, DONALD WHITE, A. O. CUTHBERT, and GEORGE B. SHEPARD.

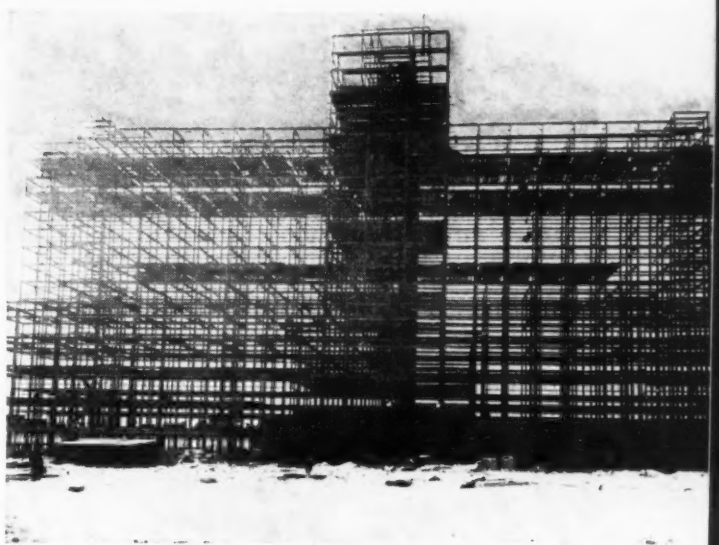


RISING FROM RUINS are two large buildings near Cathedral Square, Milan, Italy, replacing structures gutted by bombs.
Wide World Photo

SCHOOL FOR BRICKLAYERS at Philadelphia Institute, organized to prepare new crop of artisans to take their places in thinning ranks of skilled masons, has 100 enrollees, mostly young veterans. Course, designed to turn out trained masons at end of 17 weeks, includes not only bricklaying technique, but also study of chemistry and physical qualities of bricks.

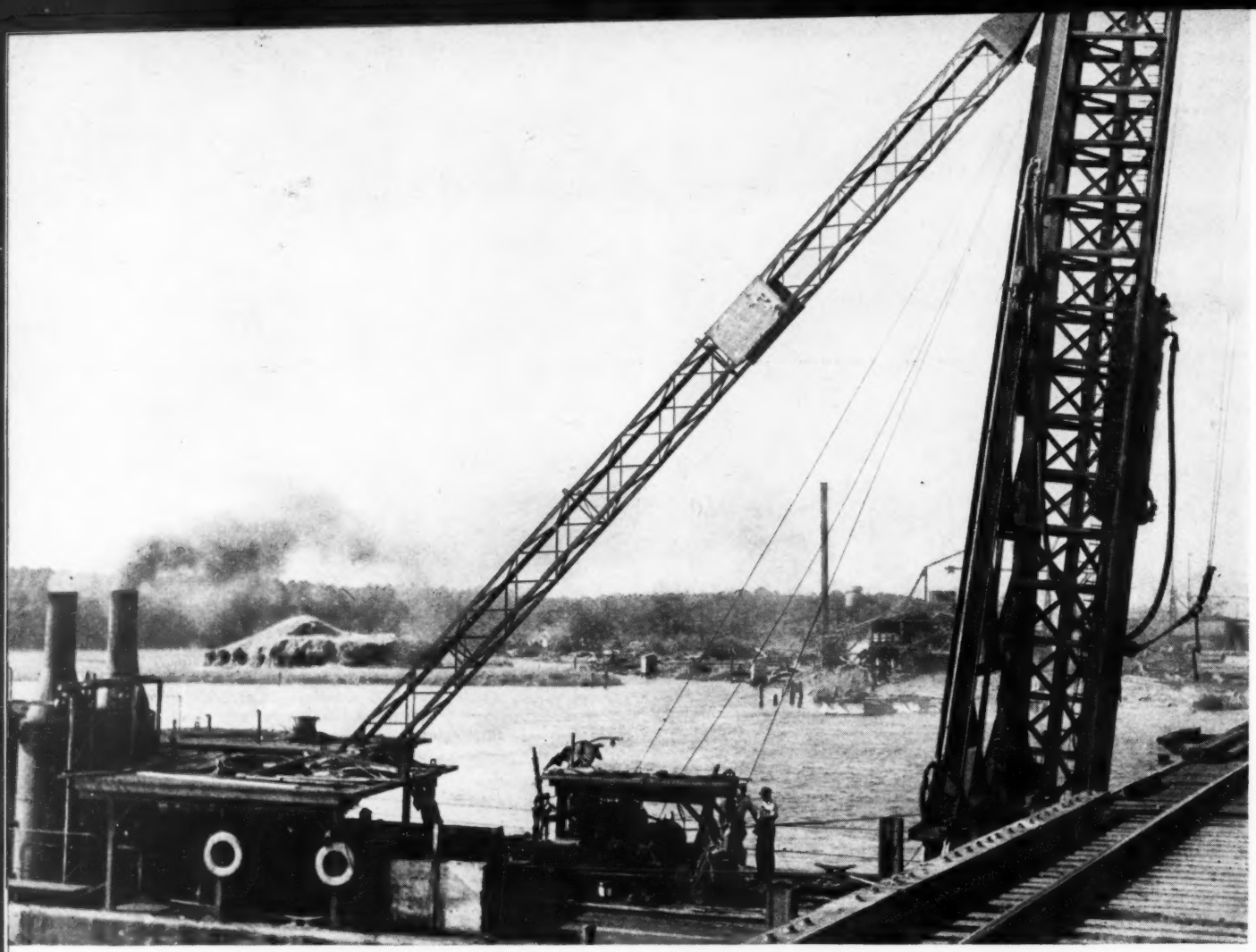


FIRST OF THE BRAND NEW postwar pieces of construction equipment is the Ingersoll-Rand "Quarrymaster"; 21-ton self-powered, self-propelled rig on crawlers. New type piston drill, riding 45-ft. folding tower, will drill a 6-in. hole up to 70 ft. deep. Drill is self-rotating and is fed by controlled air-power chain feed. Exhaust from drill blows cuttings and dust out of hole, to be gathered by dust collector and hood at collar. Outriggers steady machine while drilling. All operations are air-powered from 500-ft. compressor. Accompanying views show rig in drilling and traveling positions.



STEELWORK FOR VETERANS HOSPITAL near Fort Hamilton, Brooklyn, New York, is topped out. Seventeen-story, 1,000-bed structure to cost about $17,500,000 is first to be built since World War II for veterans in Metropolitan area, according to Office of New York District Engineers, Corps of Engineers, Department of the Army. Prime contract for hospital and power house is held by Cauldwell-Wingate Co. Other contracts are: Bethlehem Steel Co., steel fabrication and erection; and Stock Construction Co., excavation and piling.

PRECIOUS CARGO comprising 200-in. telescope mirror (below) is transported 163 mi. from Pasadena, Calif. to Mount Palomar Observatory. Load of 80 tons was hauled over tortuous mountain roads by three Cummins-powered Sterling tractors by Belyea Truck Co. and Pacific Crane and Rigging Co. of Los Angeles. Value of precision-ground glass mirror is estimated at $600,000. Telescope mirror was packed in 20-ft. square wood case mounted on specially prepared Freuhauf low-bed trailer.



VERSATILE PILEDRIVER drives steel pipe piles from any angle for L.&N. R.R. bridge over Pascagoula River working alongside existing bridge without affecting traffic. A-frame supporting leads is tilted backward and forward by cable-operated stiffleg sliding in slot at rear of barge. Single operator controls all operations.

From Any Angle...

Special Rig Drives 2-Way Battered Piles

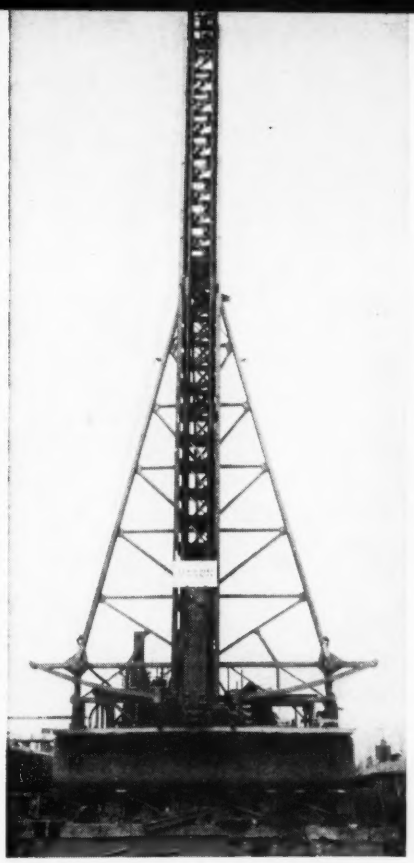
FACED with three tough pile-driving problems rolled into one—deep water, long piles battered in several directions, and close working clearances to passing trains—Maxon Construction Co., Dayton, Ohio, licked all three at one fell swoop by building a barge-mounted piledriver designed especially for the job. This floating rig can pick up a 95-ft. pile and drive it in any direction on the surface of any cone having a slope not greater than 3¾ in. per ft. of height. The project is rebuilding a single-track, 15-span through plate girder bridge over the West Pascagoula River at Gautier, Miss., on the L.&N. R.R. between Mobile, Ala. and New Orleans.

By O. A. ZIMMERMAN
Construction Engineer,
Maxon Construction Co.
Dayton, Ohio

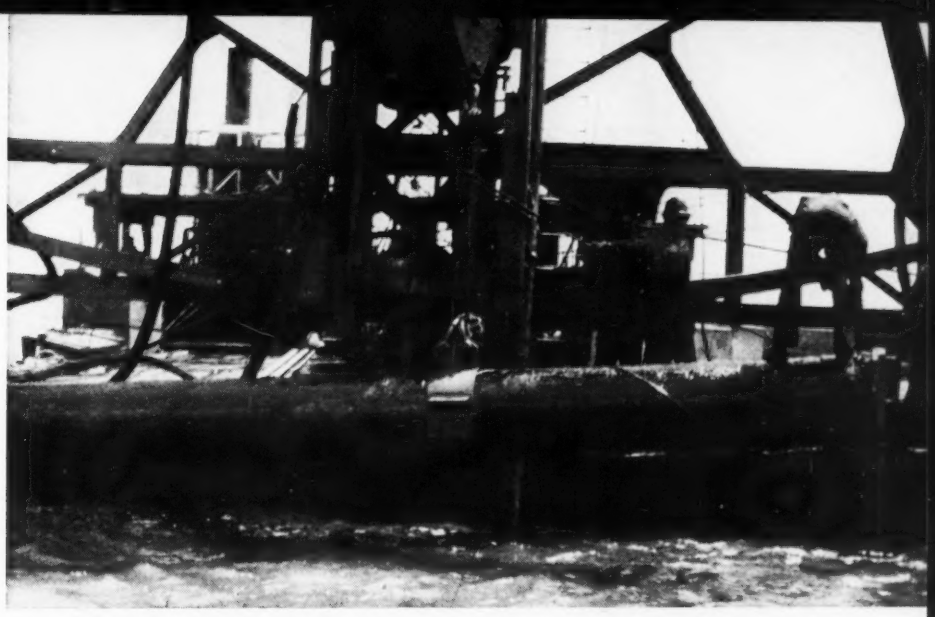
Specifically, the job included removing all 16 of the original timber pile piers and replacing them with tubular steel piles capped with reinforced concrete beams and re-seating the original superstructure on the new piers.

Girders Shifted Endwise

New piers were spotted at the center of the old girder spans and steel piles were located outside the



TRANSVERSE TILTING of 85-ft. leads is by cable-operated guides fastening bottom of leads to curved moonbeam. Leads are pinned to top of 54-ft. A-frame. This view was taken during piledriver assembly.



PILES ARE PLUGGED at top (extreme right) for watertightness and then floated to driver. They are picked up by a special collar clamped to pile, which also serves as lead guide during driving.

girder lines to permit driving without interrupting rail traffic. After completion of the piers, the girders were shifted endwise one-half their length and seated on the new piers.

Toughest problem on this job was the driving of piles because of their size, position and batter. But the floating rig was designed to meet all driving requirements and results proved most satisfactory. Each pier contains 16 piles, making a total of 256. They are 80 ft. long, 24 in. dia., made up of spiral welded pipe with ½-in. walls fitted with cast steel points. All piles were manufactured by the American Rolling Mills, Middleton, Ohio.

Each pile top was reinforced for driving with a 12x½-in. steel band. They were shipped to the job in 40-ft. lengths. Two 40-ft. sections and one point were field assembled and welded together before driving, requiring two circumferential welds per pile. All piles were watertight and, after driving, were capped temporarily to exclude water.

After driving each pile was reinforced with eight 1¼-in. sq. bars spirally wrapped, and then filled with concrete. Pier caps were formed on steel beam supports suspended from the top of the completed piles and filled with reinforced concrete, thus completing the pier.

The location of the pile groups with reference to the original structure and the relative position and batter of each pile in cluster required a driver that could be spotted at right angles to center line of bridge and, in this position, drive the piles to any batter and at any angle from the center within a horizontal circle. To satisfy these requirements the driver was designed to drive piles to a maximum batter of 3¾ in. per ft. of height, transversely or longi-

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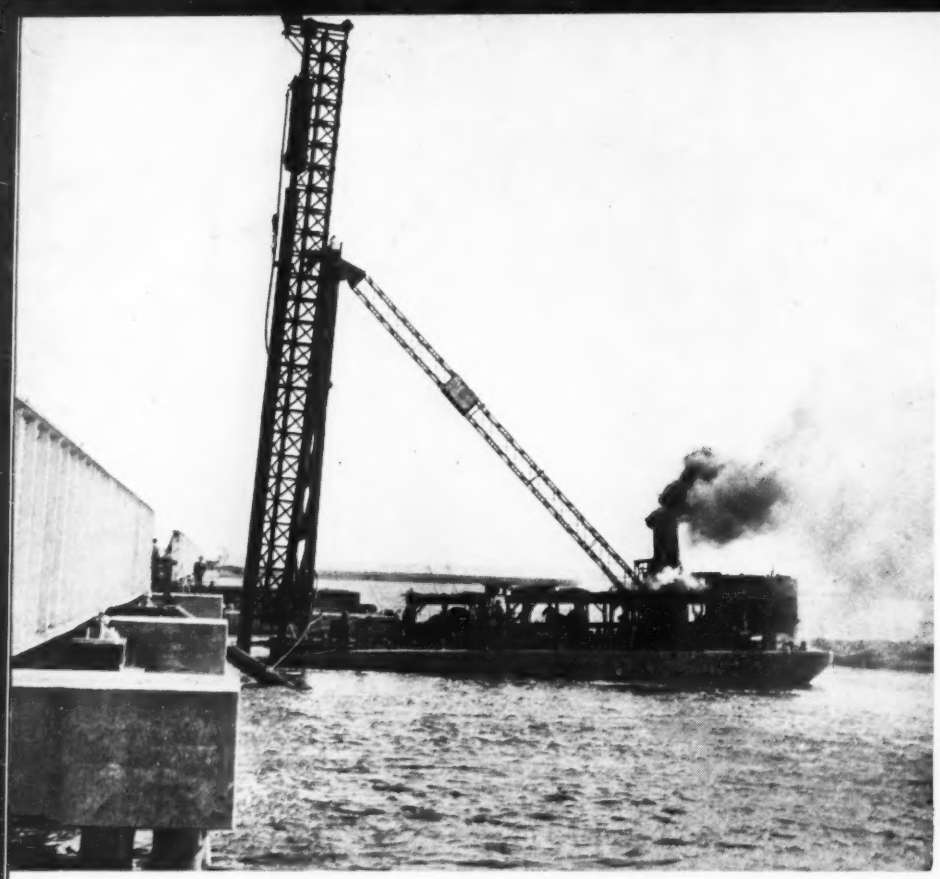
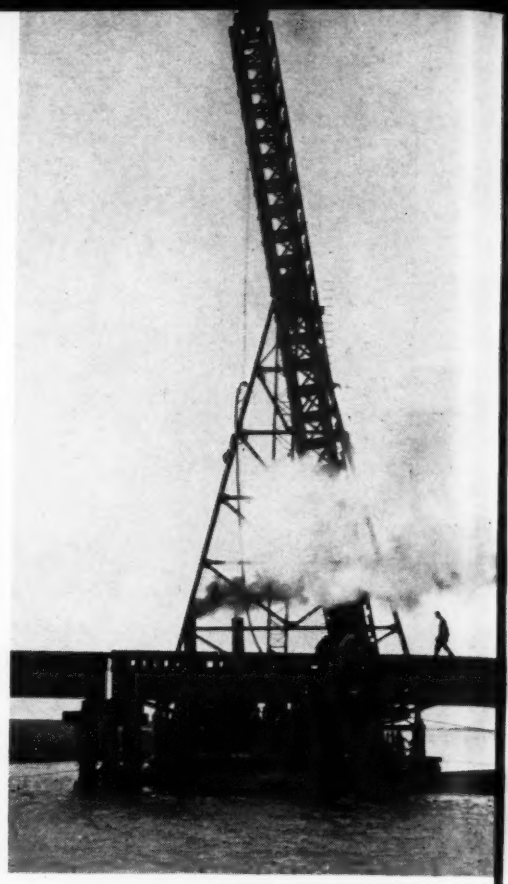
LEADS ARE TILTED forward with hammer in low position for picking up piles through special collar and guide.





TILTING A-FRAME BACKWARD drives piles in one position of batter (left) while swinging bottom of leads along moonbeam (right) drives them in another batter. These and some of the other views were taken at point where short trestle span existed in original bridge, replaced with temporary beam span for building this one new pier. Elsewhere new piers are spaced midway in old girder spans as can be seen in view at left.

tudinally. Maximum combined batter is 5 in. per ft.

The piledriving leads, suspended from the top of an A-frame, can be battered right or left on a moonbeam fastened near the bottom of the A-frame, while the A-frame and leads thus combined can be tilted forward and backward to produce a batter in like amount.

The 85-ft. leads and operating machinery are mounted on a 34x75-ft. steel barge. Leads are designed to accommodate the largest hammers and are capable of picking up a pile weighing 25 tons with their own rigging. Piles on this job weighed only 5 tons, but the driver was built to do heavier work where larger piles are required.

Leads are suspended at the top of the 54-ft. A-frame on a pin-pivoted joint and attached near the bottom to the moonbeam. Movement of the leads, right and left, is by a hoist cable attached to the leads which, in turn, slide on the moonbeam and are held firmly in position by it. The A-frame sits on shoes at each side of the barge and is pinned to permit movement forward and aft. It is supported in these positions by the rear stiffleg whose lower end slides back and forth in a slotted frame attached near the rear of the barge, and along the longitudinal center line. This forward and aft movement is also controlled by hoist cables.

Leads, A-frame and rear stiffleg make up the main fabricated parts of the driver. Operating equipment installed on the barge includes two 60-hp. vertical steam boilers for the hammer and hoist, one boiler feed pump, one steam-driven jet pump, two 3-drum and one 2-drum skeleton hoists, and one swing engine.

One-Man Operation

One of the 3-drum engines, the 2-drum engine and the swing engine are hooked together through a bank of levers for one-man operation. The main 3-drum engine operates the hammer line, pile line and jet line. The 2-drum engine operates the lines on the moonbeam, while the swing engine operates the rear boom. The other 3-drum engine is operated separately and controls the lines for moving the barge and holding it in position. Water tanks and coal bins also are provided near the boiler location.

Space limitations on the operating barge require the A-frame and leads to be loaded on a separate barge for long distance transportation. These items can be dismantled and reerected without additional hoisting equipment. For this operation, bottom of leads is pinned to an auxiliary shoe temporarily attached to the deck, and the A-frame is used for the revolving lift.

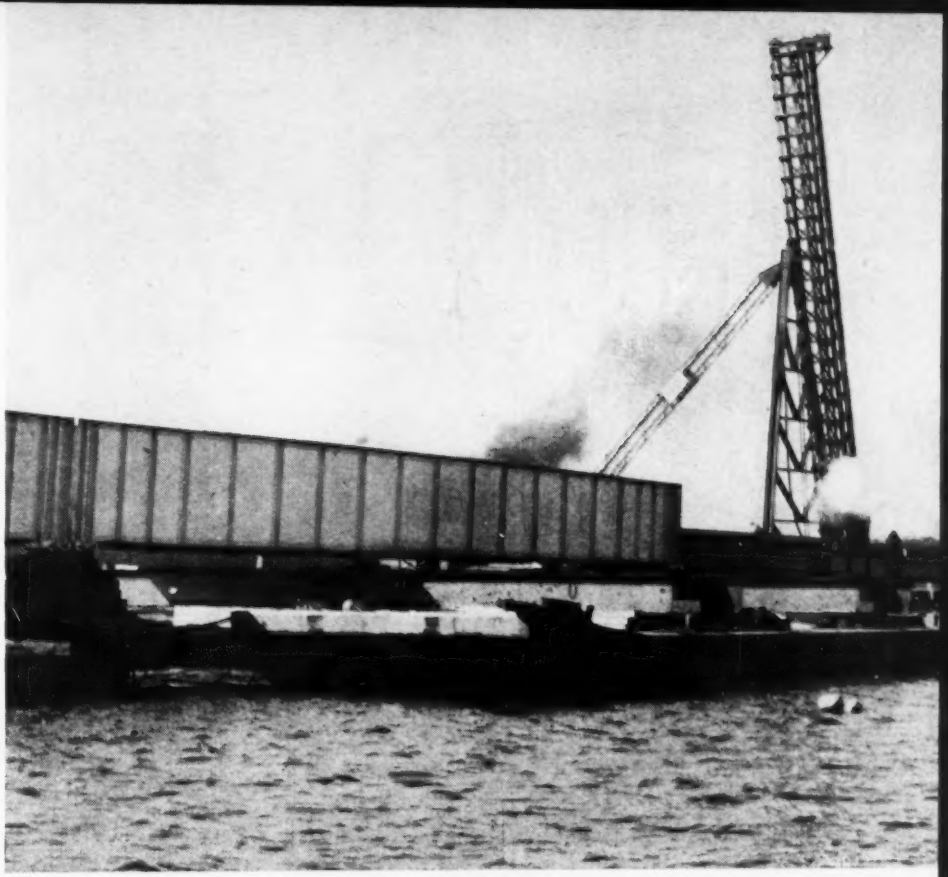
The A-frame, itself, is raised and lowered by a temporary gin-pole. Incidentally, if this equipment were installed on a larger barge, say 40x100-ft., it could be raised and lowered by a telescopic rear stiffleg which would permit nesting the entire driver, A-frame, leads and all on its own hull without dismantling.

Spotting a Pile

The 80-ft. steel piles were capped with a wooden plug, while a steel collar, with ears that fit the leads, was bolted temporarily around each pile near its upper end. Pile tops were coated with asphalt and floated to the driver.

They were picked up out of the water by the hoist block, using a shackle hitch on the temporary collar. With the heavy hammer at the bottom of the leads, the A-frame was tilted forward slightly, permitting the 80-ft. pile to be picked up without fouling the hammer, hose or any part of the driver.

With the pile thus suspended, the hammer was raised to the top of the leads. The leads then were tilted aft during which operation the pile was lowered into place where it was guided and held in exact position under the hammer by the collar. When the pile was thus cinched in the leads, the operations necessary to put it on the right batter were performed—both movements requiring not more than 30 sec. The pile then was lowered on to the bottom ready for driving and the hammer dropped on to the pile. The guide collar was removed as it reached bottom of leads. One engineer at at the bank of levers handled all these operations quickly and with ease. An S-10 special McKiernan-Terry hammer was used on this job.



PILEDRIVER works on new pile as railroad forces get ready to shift one of girder spans by jacking beams extending under span to barge on each side of track.

Piles were driven through silt, clay, gravel, and in to fine sand to carry an estimated load of 150 tons each. To develop this resistance it was necessary to drive the piling to penetrations 64 to 89 ft. below water level. This required splicing 46 piles. Although a water jet was available it was not used because of difficulty in jetting the batter piles while maintaining them in their proper positions.

Rig Built by Maxon

The Maxon Construction Co. was the contractor on the entire bridge rebuilding job and furnished all equipment. Plans of the driver were proposed by the author, and the design and details were developed under the supervision of Harvey L. Goodell, chief engineer. Fabrication of the barge, leads, A-frame and other structural parts, including the complete assembly of the driver before launching, was handled in the shops and yards of Maxon's Marine Division at Tell City, Ind., with Glen W. Maxon, Jr., in charge.

After assembly, the driver was launched into the Ohio River and, along with other Maxon-built barges loaded with additional equipment and supplies, the fleet was towed down the Ohio and Mississippi rivers to New Orleans and from there through the intercoastal canal to the job site about 100 mi. east of New Orleans. W. R. Pierson was field superintendent for Maxon.

Shifting of the spans is being done by railroad forces using two Maxon steel barges. The barges are lined up on each side of the span, and the girders are picked up by jacking beams reaching from barge to barge. A half-length temporary span is moved ahead as work progresses to keep traffic going.

The L. & N. Railroad Co. was represented by C. H. Blackman, chief engineer; C. K. Bruce, bridge engineer, with R. B. Lindsey, resident engineer at the site.

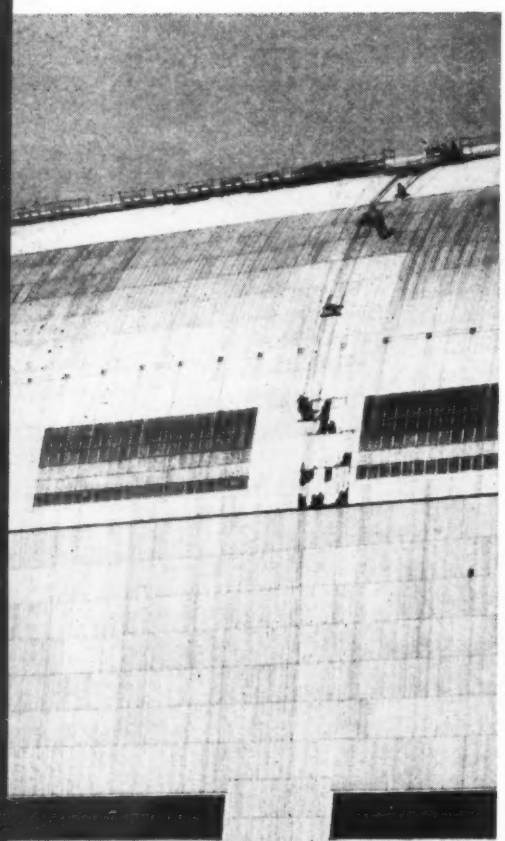
Denny Hayes Photo

They Head Up A. G. C.

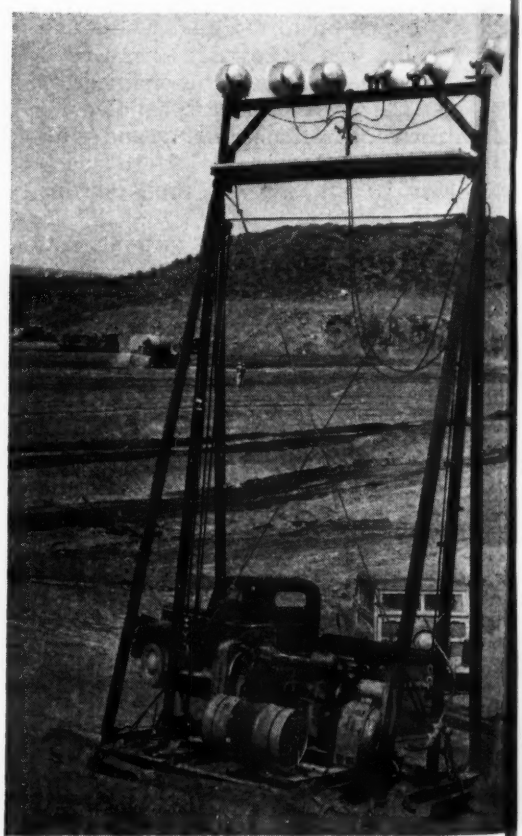
OLD AND NEW officers of the Associated General Contractors of America were installed at the annual convention in Dallas last month. The quartet will direct the association for the coming year. They are, left to right, Adolph Teichert, Jr., Sacramento, Calif., vice-president; Dwight W. Winkelman, Syracuse, N. Y., president; H. E. (Doc) Foreman, who continues as managing director; and the re-elected Scotch treasurer, William H. Muirhead, Durham, N. C.

HOW ...they did it

FOR SUBSURFACE EXPLORATION to locate rock, gravel or other materials for highway construction, physical research labs of Public Roads Administration have adapted electrical indicator that accurately determines depth and extent of underlying strata without recourse to test pits or borings. Instrument measures different resistances of various materials as electric current is passed between two metal stakes driven in ground. PRA Photo

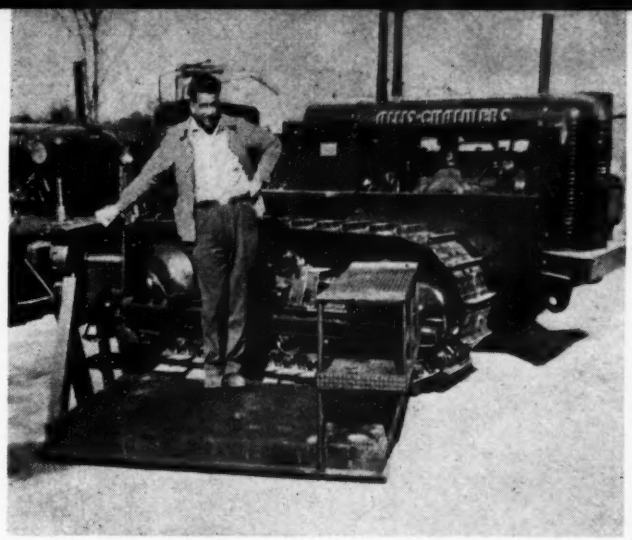


TAKING THE HIGH ROAD, 5,200-lb. radar unit starts 170-ft. trip to roof of hangar at Moffett Field, Calif. Winches and cables passing over roof raise dolly-mounted equipment as Bay City truck crane eases it against hangar wall up which it will roll. U. S. Navy Photo

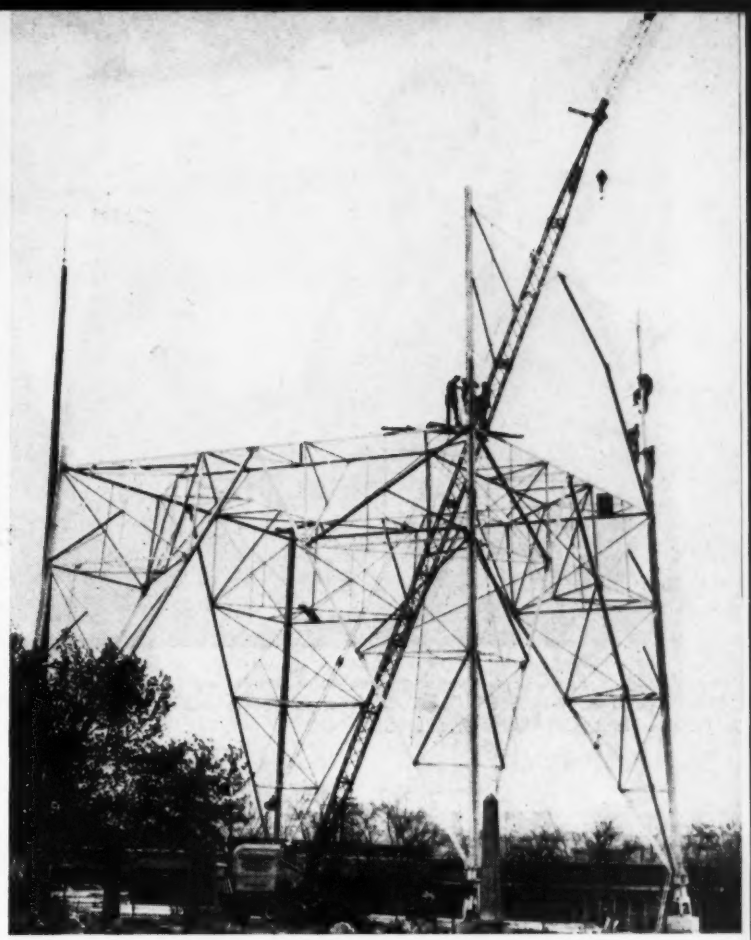


FOR NIGHT WORK on earth fill at Potholes Dam, Wash., contractors Lytle, Amis and Green rigged up welded, variable-height floodlight stand, mounted it on skids for easy moving and powered it with Caterpillar diesel generator set. Pipe legs of upper floodlight rack ride in slotted vertical pipes of lower frame and are raised by cables to hand winch on stand base at left. Note long electric leads to floodlight bank, and ladder and platform for quick servicing and readjustment of lights.

TO PULL STEEL SHEETPILING from under water, Guy F. Atkinson Co. developed 40-ft. lead with flared open end of 1½-in. steel plate shaped to help position lead as it is lowered over sheetpile. In operation, cable attached to lever end is pulled taut, inserting 2-in. steel rod in handling hole near pile top as the lead is slowly lifted. Vulcan 800-A pile extractor at top of lead finishes job. Rig was developed for contractor's 12-ft. dia., 5,000-ft. ocean sewer outfall job for city of Los Angeles.



TO CUT COST of tractor engine repair, R. L. WILSON, service manager of Southern Equipment & Tractor Co., Monroe, La., built mobile motor stand that saves up to 25 percent of labor time on overhauls of GM diesels. Caster-mounted stand is made of scrap, including gear box from blade lift mechanism of old pull-type grader. Shaft from gear box carries pre-drilled plate to which tractor motor block, with blower assembly removed, is simply bolted. When suspended from stand, all parts of tractor engine are easily accessible to mechanic. Allis-Chalmers Photo

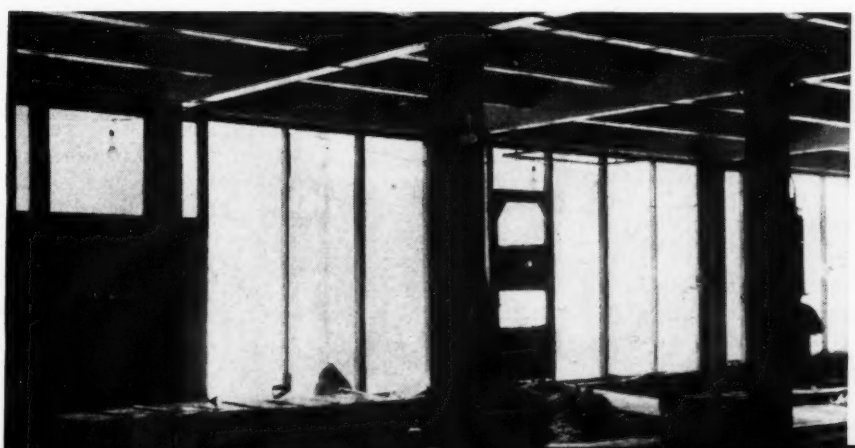


SKYSCRAPER BOOM on Lorain Moto-Crane erects new FM tower for Pittsburgh's radio station KDKA. No extra counterweight was added to this truck crane with 125-ft. boom, but operator made sure his outriggers were securely blocked.

SPECIAL ICE PATROL of Connecticut Highway Department sands 20-ft. pavement strip at rate of 10 to 12 mph., covering 9-mi. stretch of road before wooden, 6-yd., V-shaped body needs refilling. Spreader disk, driven by power takeoff, throws sand ahead of rear wheels so unit safely climbs icy grades. All controls are centered at driver's cab for one-man operation.

JOINT PACKING RIG (below) calks airport runway slabs by forcing 3/8- to 1/2-in. twisted paper rope, or Kraftcord, into opened joint. Front wheel guides unit; rear one pushes packing to required depth to dam melted rubber compound seal poured later. Packer was developed by James Gibbons Co., general contractors of Relay, Md.

TO WINTERIZE their new plant during construction, without shutting out daylight, Celanese Corp. of America replaced ordinary tarpaulins with transparent Vimlite (below)—a plastic-coated mesh of wire or plastic. Flexible material, stapled to light framing, passes sun's warmth, excludes wind and confines salamander heat to building.



BRONZE PLAQUES, denoting The Moles annual award for outstanding construction achievement are presented to LIEUT. GEN. RAYMOND A. WHEELER (left), Chief of Engineers and WILLIAM A. DURKIN (right), president of Walsh Construction Co., by Moles president, CHARLES B. SPENCER.

Moles Honor Wheeler and Durkin

THE MOLES AWARD for Outstanding Achievement in Construction Presented This Fourth Day of February, Nineteen Hundred and Forty-Eight, to Lieutenant General Raymond A. Wheeler, Engineer, Soldier and Diplomat, in Recognition of His Courage, Skill and Genius, Notably in the Fields of Rivers, Harbors, Flood Control and Military Construction.

AT AN IMPRESSIVE dinner ceremony at New York Feb. 4, Lieut. Gen. Raymond A. Wheeler, Chief of Engineers, Department of the Army, and William A. Durkin, president of Walsh Construction Co., were presented with the annual award of The Moles, New York society of tunnel and heavy construction men, for outstanding achievement in construction.

Carl L. Swenson, chairman of the Award Committee, presented Gen. Brehon B. Somervell, now president of Koppers Company, and Richard L. Dougherty, vice-president, New York Central R.R., who introduced Wheeler and Durkin, respectively. In introducing Gen. Wheeler, Gen. Somervell paid tribute to outstanding army engineers of the past, and in summing up Wheeler's career, remarked that "He brings to that high office (Chief of Engineers) the distinction won through years of high achievement in all the tasks which have fallen to his lot."

In accepting the non-member award Gen. Wheeler said: "This honor conferred upon me tonight is unlike any other that I have been privileged to experience in my career. Reaching into the field that is in essence non-military, it touches the secret of all American progress . . . the fact that we are a nation of builders. While the award is a personal one, I must view it in its larger sense as a tribute to the entire Corps of Engineers, whose successful achievements in construction are due to the close cooperation we have enjoyed with the private contractor and the construction industry as a whole."

"This Award . . . is a happy indication that I and those who serve with me in the Corps of Engineers enjoy the confidence of our teammates in the private construction field who share with us the responsibility of building a better America."

In introducing Bill Durkin, member award winner, Mr. Dougherty paid tribute to the versatility of the American contractor. He especially praised Walsh Construction Co., which has completed lots of work for the New York Central.

Durkin brought down the house with a simple, heart-warming speech of acceptance. He was humbly appreciative of the honor, particularly "to be selected along with the non-member recipient tonight, General Wheeler. No one could have been more surprised at this selection, no one could be more pleased, and no one could be more grateful."

THE MOLES AWARD for Outstanding Achievement in Construction Presented This Fourth Day of February, Nineteen Hundred and Forty-Eight, to William A. Durkin, a Member of The Moles, in Recognition of His Extraordinary Leadership, Diligence and Distintinguished Accomplishment, Notably in the Fields of Railroad, Tunnel, and Dry Dock Construction.

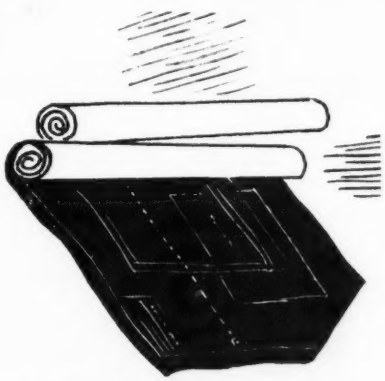
He went on to "talk shop" to a group of construction men, mentioning the development of contractor combinations and the improvements in construction technique and equipment. He pleaded for consideration of building up construction organizations by developing the younger men into positions of responsibility. He paid tribute to the men of his own organization, closing with the remark: "I know my limitations more than anyone else, and, in accepting this most cherished award, I do so, not for myself alone, but as a representative of the Walsh Construction Co., of which I am fortunate enough to be a member."

LEGAL ADVENTURES OF TRACTOR CONN

By LESLIE JOBB

By recounting the experiences of Tractor Conn, who symbolizes the average contractor, this series of articles, each based on the decision of an American court and presented in plain, non-legalistic terms, is designed to help construction men avoid costly legal pitfalls.—Editor

The Case of the Defective Plans



If Tractor Conn employsanarchitect to draw plans and specifications for a building, and the architect performs his work negligently and unskillfully, it is very ordinary "fireside law" that Conn may sue the architect and collect damages.

This being so, what amount of damages may Conn recover?

This point arose in a Florida case where the Supreme Court of that State ruled that Tractor Conn could collect by way of damages a sum of money equal to the difference between the value of the building as actually designed and erected according to the architects defective plans and the value of the same building as it would have been if it had been properly designed.

Another interesting point arises when, on account of the insufficiency of the architect's plans, the construction of the building is delayed for several months, and Tractor Conn or owner sues the architect for the rentals which might have been received from the building during the delay.

Is the architect also liable for the loss of rentals? This point also arose, in the Florida case already referred to, where the court ruled in favor of the architect.

"When on account of defects or of some oversight on the part of the architect, it is necessary that repairs be made, the claimant cannot make them at an unnecessary expense or in an unnecessarily extravagant form and recover as damages the amount of his disbursements. He must confine his claim to such a sum as will represent the cost of effecting the repairs as economically as it is possible to effect them consistent with proper workmanship and construction. This rule seems to take no account of loss of rentals nor delays in occupying the premises, which are too remote and speculative to be considered," was the reasoning of the Court on this point.

The Case of the Seller's "Puff"

When Tractor Conn buys supplies and receives a direct and definite statement in reference thereto at the time thereof, this statement will generally be construed as a warranty which will be binding on the seller. On the other hand, mere general statements commending the seller's goods are generally construed as "puffing" or mere "dealer's talk", and will not be construed as warranties. For instance, in one case where a seller stated that his machine would "work as smooth as honey," the Court held that this statement was not a warranty, so if the seller says that his supplies will "knock the eye out of anything else on the market at the same price", Conn has no comeback on the seller.

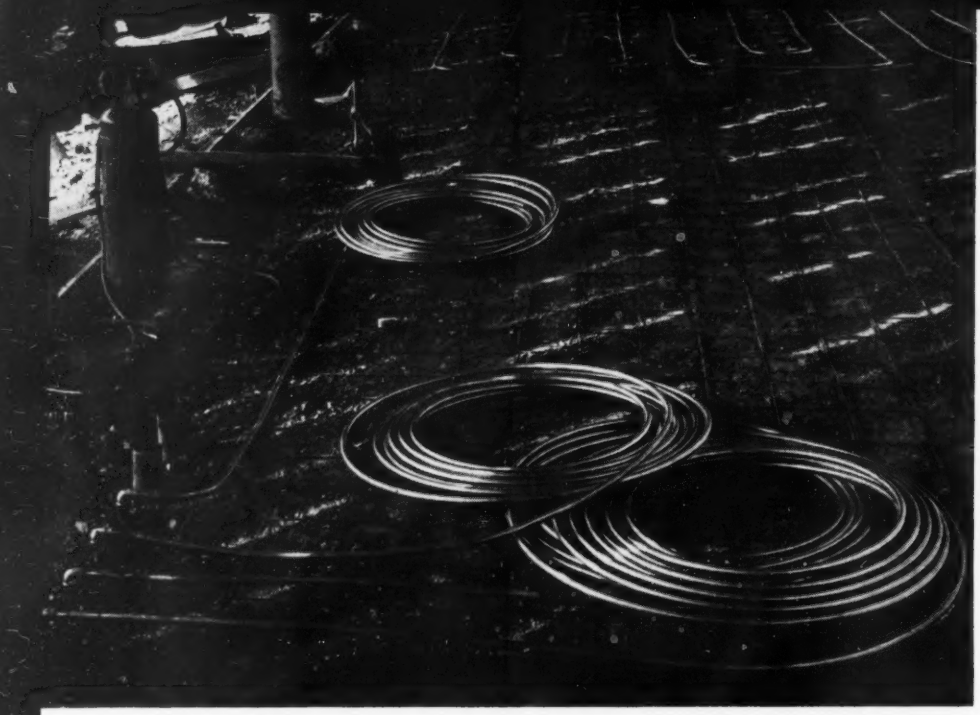
In a Utah case, however, Tractor Conn bought a new power shovel. The salesman stated that it would do whatever any other shovel would do, but when tried out, it would not do much of anything. Conn sued for damages for breach of warranty.

"There was no warranty. What our salesman said was merely sales talk," the manufacturer contended.

"I didn't take it that way," Conn retorted, and the Utah Supreme Court ruled in his favor.

"We regard the statement that the power shovel would do what any other shovel would do as amounting to an express warranty, and not mere 'sales talk,' nor an expression of opinion," said the Court in the Summers case, 178 Pac. 916.

More Legal Adventures of Tractor Conn Next Month

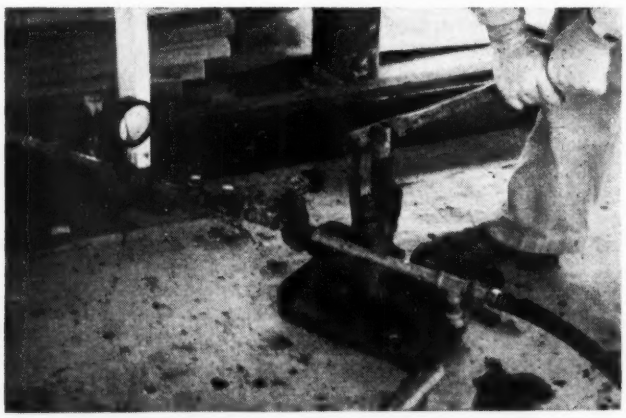


FLEXIBLE COPPER TUBING for radiant heating system comes to job in 60-ft. coils. Before unrolling, tubing is connected to hot water delivery pipes.

Labor Saved by Copper Tubing for Radiant Heating

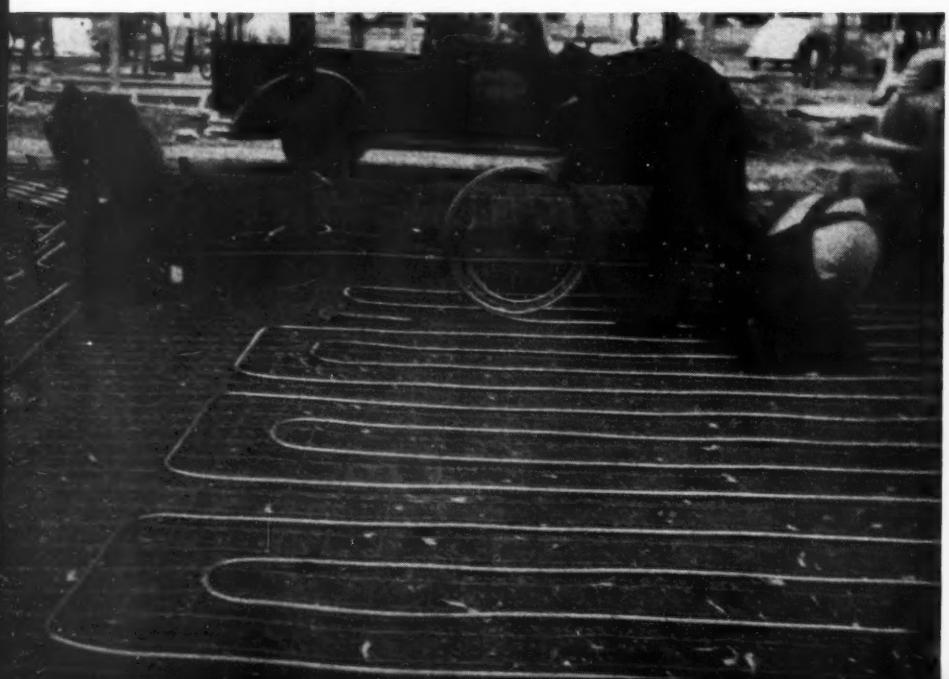
TO REDUCE LABOR COSTS, easily-installed flexible copper tubing was chosen for radiant heating systems in two schools recently built in northern California. A crew of only three men—welder, plumber and helper—installed as much as 3,500 ft. of ½-in. copper tubing in one 8-hr. shift.

The flexible tubing was delivered to the jobs in 60-ft. coiled lengths which were quickly laid merely by unrolling them. Necessary bends were shaped with a small levered tool or by hand bending around a wooden jig. Joints had sleeve-type connectors sealed with silver solder by a welder. On the California work, joints were tested to 350 psi. and the pressure was maintained while a 4-in. concrete floor slab was poured around the heating coils. The tubing was centered



SIMPLE PUMP, connected to job water supply, maintains 350-lb. test pressure on radiant heating system while concrete slab is poured.

TUBING COILS (below), are easily unrolled for installation. No prefabrication of piping runs is required, and long lengths mean few joints.



LEVERED HAND TOOL (below), quickly makes bends in ½-in. copper tubing.

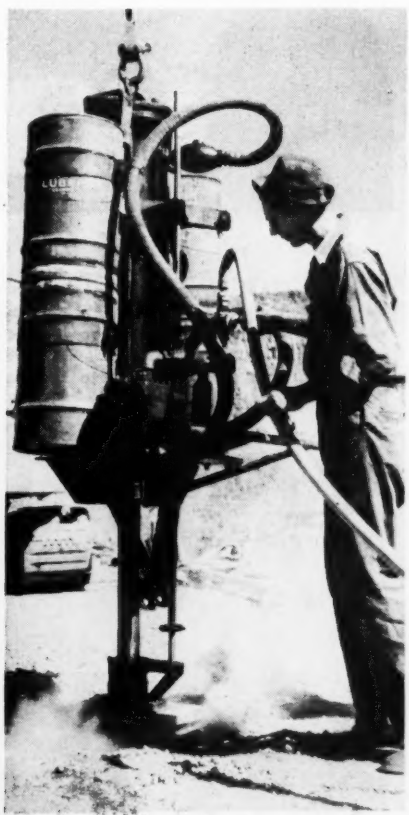
RUNWAY SYSTEM keeps workmen off copper heating coils as slab concrete is buggied into place.

RADIANT-HEATED floor slab 4 in. thick gets final going-over from Whiteman machine finisher.

in the slab by resting it on 2-in. concrete or adobe cubes as chairs, or by holding it with hooks as concrete was shoveled beneath it.

Franklin, Kump & Falk, San Francisco architects and engineers, designed the two buildings: the Laurel Creek Elementary School in San Mateo, and the Charter St. School in Redwood City. Contractor on the former was C. F. Parker, San Francisco; and on the latter, Peter Sorenson of Redwood City. Harry Lee, Burlingame, was heating contractor for both jobs.

Soil Tamper Made From Pavement Breaker



A NEW RIG for compacting earth fill for Long Lake Dam on the Columbia Basin Project was made in the shops of the contractor, J. A. Terteling & Sons. It consists of an air-operated pavement breaker with a 14x20-in. steel shoe replacing the blade. Added weights consisting of concrete cast in old lube cans are attached to the sides, and the tamper is suspended from a crane when operated. Accompanying illustrations show close-up and close-quarter operations of the rig.

As 95-98% density is required in the impervious section at the center of the dam, close attention has to be given to compaction. This new machine replaces small hand-operated tampers normally used in such restricted spots. After the fill reaches sufficient depth and maneuvering room is more readily available, compaction will be by standard USBR sheepsfoot rollers.

Bob Ross is general superintendent for Terteling on the work, but he gives all credit for developing this new tamper to the mechanics in Terteling's shops at Long Lake Dam.

Present and Accounted For···A PAGE OF PERSONALITIES

COL. W. F. HEAVEY recently retired as District Engineer in New York City for Corps of Engineers, Department of Army, to fill newly created post of consulting engineer in New York City Department of Marine and Aviation.

NEW PRESIDENT of New York State chapter of Associated General Contractors is MICHAEL J. TORPEY, head of Woodside, N. Y., contracting firm which bears his name and which is active in various construction and housing projects throughout East, among them building of 300 igloos at Letterkenny Ordnance depot at Chambersburg, Pa., Corning Flood control project and Queens Bridge, East River, John Lovejoy Elliott, Vladeck and Jacob Riis housing developments in New York City.

FIRST WOMAN OFFICER of Turner Construction Company is MRS. ELSIE S. MARR who was named assistant secretary of the organization at its recent annual meeting. Mrs. Marr has served company since 1906 as secretary to present president and his three predecessors.

←

ACTING DIRECTOR of Louisiana State Highway Department is ROBERT B. RICHARDSON, replacing Col. P. A. Frye who resigned recently. Mr. Richardson has been construction and maintenance engineer since 1940.

→

CONTRACT ENGINEER in Eastern District for the H. K. Ferguson Co. is new post of ROBERT H. FULLER who has been associated with Pan American Airways for last seven years in supervision of construction of airports and terminal facilities in various Latin-American countries.

RESEARCH DIRECTOR in department of building engineering and construction, Massachusetts Institute of Technology is new appointment of JAMES S. MURRAY who will supervise activities of masonry materials research laboratory.

CHIEF ENGINEER of California's new division of San Francisco Bay Toll Crossings is RALPH TUDOR who will supervise surveys, preparation of plans and construction of additional highway crossings of bay. Tudor was senior design engineer on present San Francisco-Oakland bay bridge.

SECOND TERM in office is just beginning for WILLIAM A. McWILLIAMS of Dover who was reelected chief engineer of Delaware Highway Commission, having been advanced from assistant chief to this position in 1946.

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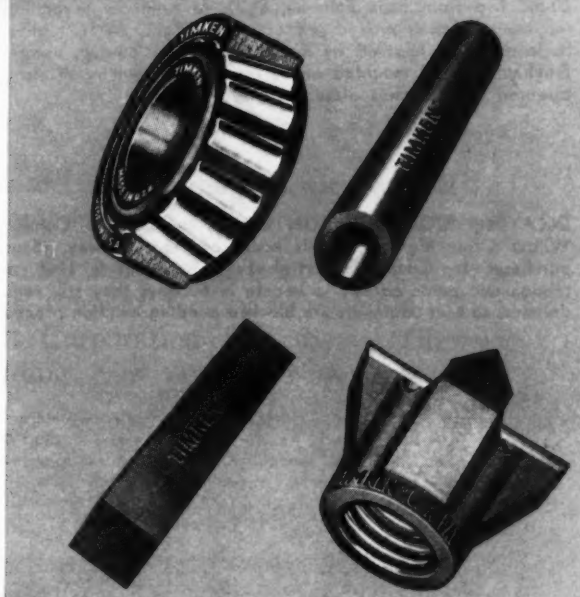

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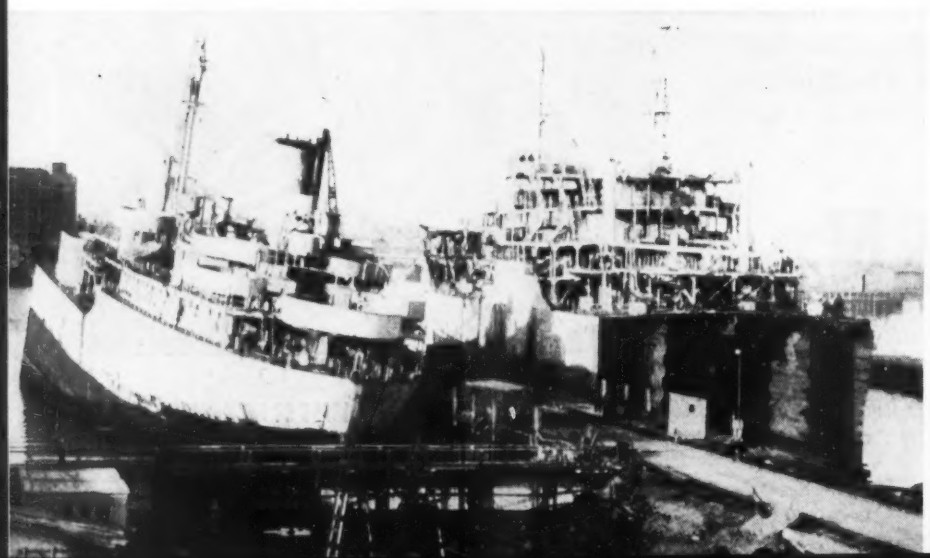
NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION

JOB oddities

DOWN COMES CUPOLA from century-old perch atop Bridgeport, Conn., Art League headquarters building, lifted and lowered by Lorain 20-ton Moto-crane. Unit was called into action when removal of 4-ton, 1,000-cu. ft. structure stumped League's dismantling personnel during current renovation program.

A RIDIN' ON A TRAILER is this mammoth 25-ton tank which made 20-mi. trip from Belle Fourche, S. D. to point in Wyoming when rail transportation proved impracticable. Tank, 34 ft. high and 28 ft. in dia., was handled by Kissick Transportation Co. using 50-ton Fruehauf carryall mounted on 16 tires and drawn by White tractor powered by Cummins diesel engine.

→ DELAYING CONSTRUCTION of exit ramp from Connecticut's Wilbur Cross highway is this house on right of way. House was purchased by Connecticut Highway Department in 1945, and although occupants agreed to vacate in 60 days they still remain on premises so that engineers are blocked pending eviction proceedings.



← SHIP DOCKS on both sides of pier at once. After Navy's 500-ft. tanker PANAGANSET split amidships, bow (right) was pulled away from stern (left) and both halves of ship were moored alongside same pier. When both sections have been ballasted to make them float evenly, they will be drydocked and welded together again.

Press Asosociation Photo

There are six reasons why Masons and Contractors prefer ATLAS MORTAR CEMENT

BUTTERY PLASTICITY
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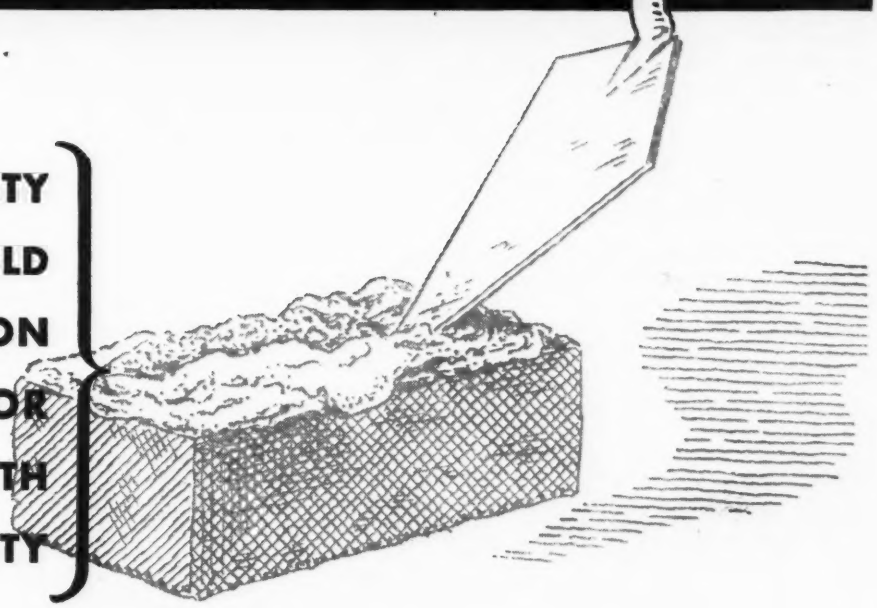
DURABILITY



It's this combination of advantages that has sold so many masons and contractors on Atlas Mortar Cement. They like its rich, fat plasticity . . . . the way it responds quickly and easily to the trowel. And they appreciate its high yield, strength, durability, color and exceptional water retention.

Backed by years of research, Atlas Mortar Cement complies with ASTM and Federal specifications for masonry cement.

For further information, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, New York.

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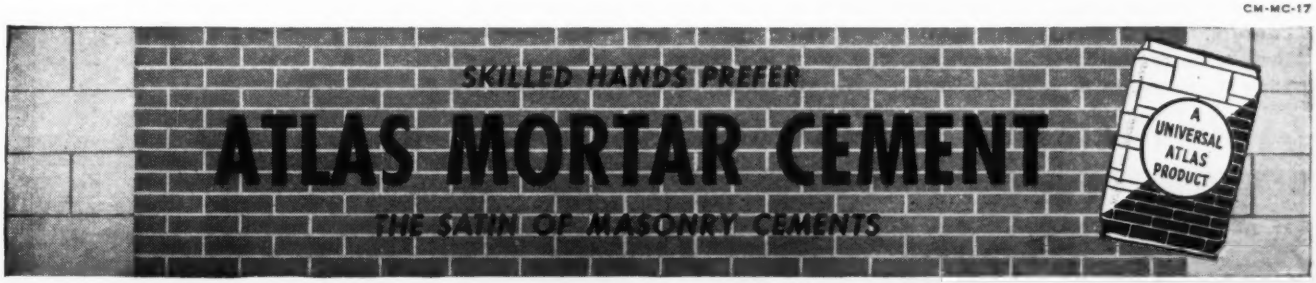
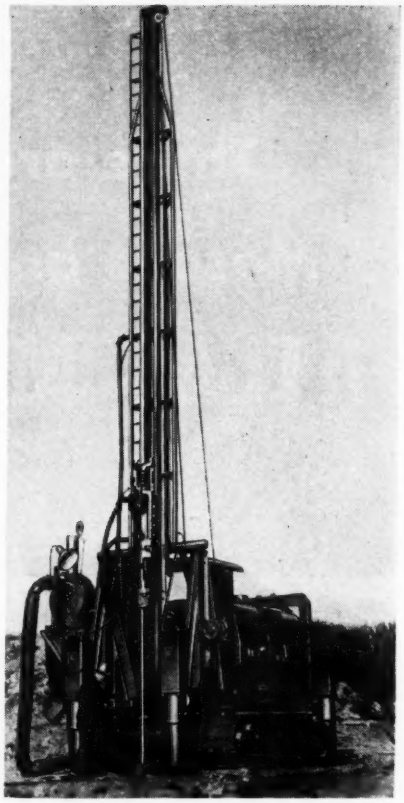


"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—ABC Network*

CONSTRUCTION EQUIPMENT NEWS

MARCH 1948 REVIEW
of Construction Machinery and Materials

(For further information about these products, use coupon below)



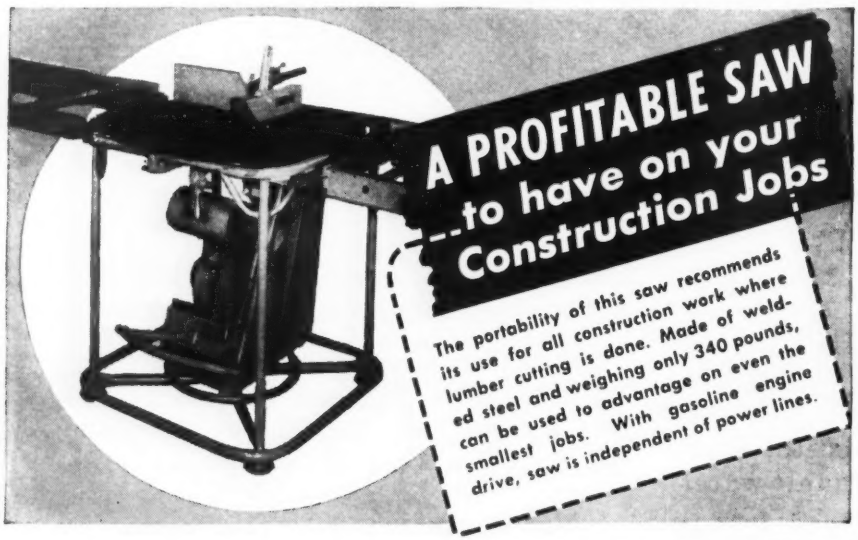
HIGHSPEED QUARRY DRILL — Ingersoll-Rand Co. has come out with a brand-new type quarry drill, named the Quarrymaster, designed to drill 6-in. holes up to 70 ft. deep four times faster than the conventional churn drill. Besides faster drilling speed, the drill meets the quarry man's long desire for automatic rotation, controlled feed and continuous hole cleaning without water.

The drill rides on a 45-ft. channel-frame tower that folds back over the rig for long moves and for overhead clearance. The tower is hinged at the top of a welded frame that houses the operating cab and an I-R standard 500-ft. portable compressor—gas, oil-engine or electrically driven—furnishing air power for all operations, all mounted on crawler treads. Thus, the rig, weighing 42,000 lb., is self-contained, self-powered and portable. It resembles a huge wagon drill or a portable pile-driver.

Propulsion and steering are by two reversible air motors independently driving each crawler tread, powerful enough to negotiate a 30-percent grade. Flexible propulsion and steering control permit easy and precise spotting of the machine. Four hydraulic-ram outriggers with large circular base plates level the rig and hold it steady while drilling. Propulsion speed is 1 mph.

The drill resembles a huge drifter drill, riding the tower frame or leads on a chain feed, powered by an air motor, just like a big wagon drill. It is a piston type, self-rotating with the drill rod clamped to the piston and reciprocating with it at a rate of 200 blows per min. Drill rods are the inexpensive churn drill

(Continued on page 118)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Stud Holding Power Between 2000 and 6000 Lbs.

.38 Cal. (top) and .22 Cal. (bottom) DRIVE-IT TOOLS

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The DRIVE-IT tool employs a small powder charge encased in a standard cartridge to drive studs 3" into concrete and through 5/8" steel. The desired stud and cartridge are placed in the tool. The muzzle of the tool is placed on the spot where the stud is to be driven and the tool is forced forward. This detonates the explosive charge, driving the stud into concrete or steel with such force the stud actually fuses with aggragate or metal. Up to 6000 lbs. force is required to pull DRIVE-IT studs from ordinary concrete.

UNLIMITED APPLICATION

The DRIVE-IT tool offers unlimited application for all contractors:

ELECTRICAL: For anchoring conduits, switch boxes, cables, etc., to concrete and masonry.

PLUMBING AND HEATING: For hanging pipe, heating ducts, from concrete ceilings or walls.

PLASTERING: For suspending ceilings or "nailing" wood firring to concrete.

GENERAL: "Nailing" steel window and door frames, wood sleepers, etc., to concrete.

ABSOLUTELY SAFE

DRIVE-IT, the **original** powder-operated tool, functions without recoil shock. It is **absolutely safe** and cannot be discharged even if dropped several floors.

Write for Demonstration

The DRIVE-IT distributor in your region will be glad to show you the .38 cal. and .22 cal. models in operation. Write for complete DRIVE-IT information, name and address of your nearest distributor.

POWDER POWER TOOL CORPORATION
FOOT OF S.W. WOODS STREET (DEPT. A)
PORTLAND 1, OREGON

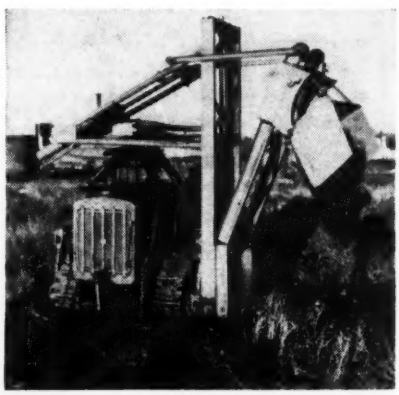
(Continued from page 116)

type in various designs of cutting edges. Experiments are being made with tungsten carbide inserts. A separate air hoist and line over top of tower handles the 35-ft. drill rods. The tower is folded down and raised back to drilling position by a snatch line fastened to the drill feed.

The drill uses 300 cfm. air, most of which is exhausted through the hollow drill steel and through the bit to clean the hole and keep the rock face free of cuttings. Additional cleaning action is by a Roto Clone dust collector, air-powered and mounted on the side of the rig, which gathers cuttings and dust blown out of the hole by a suction hose and hood at the collar of the drill hole. Thus, no water is required for hole cleaning. Also, the entire volume of the air receivers can be blown through the rod and bit if desired for final hole cleaning.

In a recent demonstration before a group of technical editors at the Phillipsburg, N. J., plant, the Quarrymaster drilled a 6-in. hole through hard limestone at the rate of 13.8 ft. per hr., actual drilling time, and 10.8 ft. per hr. overall time including setting up changing bits and adding the second length of drill rod. Here bits ran about 20 ft. before needing changing.—**Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.** *(217)*

CRAWLER TRACTOR LOADER—By eliminating more than half the movement of crawler tractors, maintenance time and fuel costs are greatly reduced with the use of this new Decker "Swing-Around" loader. Short move of tractor fills bucket in lowered position. Hydraulic ram actuates cables to pull bucket up



frame. While being raised, bucket can be swung around to discharge position. Three complete cycles a minute can be made with ½-cu.yd. and larger buckets. Loader will be made to fit several most popular models of crawler tractors.—**Decker Bros., Inc., 331 U.S. National Bank Bldg., Denver 2, Colo.** *(219)*

14-Story Structure Erected Speedily, Quietly by Arc Welding

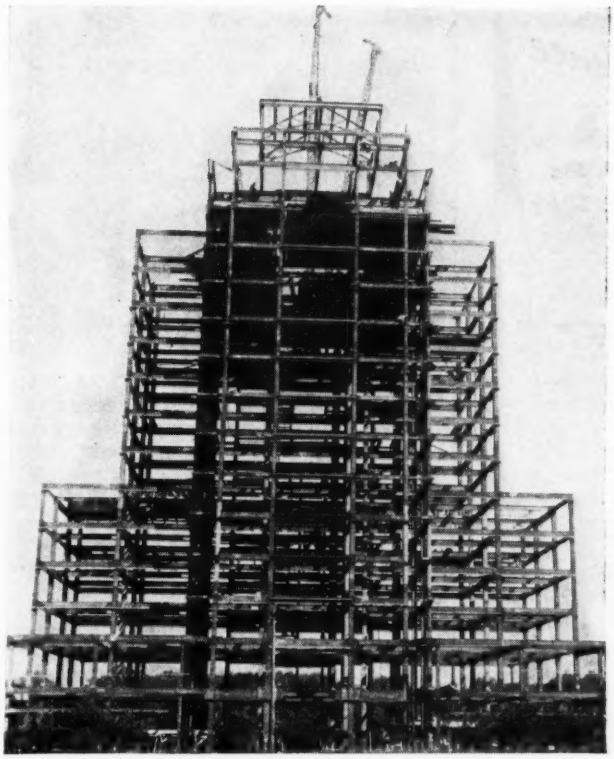


Fig. 1. All-welded structure of Hermann Professional Building.

By John R. Long, Mgr.
Houston Sales Office, Consolidated Steel Corp. of Texas
Orange, Texas

ONE of the tallest structures ever erected by arc welding is the Hermann Professional Building, a unit of the new Texas Medical Center under construction in Houston, Texas. The building is 14 stories with an additional first and second penthouse and hipped roof.

The 1400-ton structure (Fig. 1) was completely erected in 60 working days which is considered excellent speed for a building of this size and type. Considerable saving in steel tonnage was realized due to the structure's welded design. Eleven welders used approximately 40,000 pounds of Lincoln "Fleetweld 5" electrode for shop and field welding.

This is one of the first buildings of its type erected in the South, and exemplifies the rigidity and solidness of arc welded structures. There are 57 columns which, when set, were found to join perfectly.

Fig. 2 shows a connection from the spandrel beam to the corner column. Due to the flange connection, stiffener plates were required in the web and since the spandrel beam was centered on the flange of the column, the stiffener plate acts as a connection plate for the spandrel. Their entrant cut was necessary due to pipe chases in the floor.

As shown in Fig. 3, the column at the corner of the elevator opening is the only portion of the structure where cross-bracing was employed. It shows a typical connection of one of the many beams throughout the job that were offset from the center line of the columns. Due to the various types of conditions, a design was made of each connection and drawn in detail before any structural detailing was started. This enabled us to design nearly all connections for downhand welding. A welding sequence was employed throughout erection which proved economical in the fact that none of the structure had to be replumbed after welding had been completed. Engineers checked each column with a transit, and the column corners showed no more than a $\frac{1}{8}$" variance from top to bottom.

The architect firms which had joint responsibility for this job and the erection sequence are Hedrick & Lindsley and Kenneth Franzheim, both of Houston. The general contractor is Linbeck & Dederick Construction Co., Houston, and the Consolidated Steel Corporation of Texas is the fabricator and erector.

Conspicuous by its absence on this job was the noise usually associated with structural work. Silent erection, one of the advantages of arc welded structures, is particularly important in areas where quiet must be maintained.

Fig. 2. Welded connections are simple in design. Bolts serve only to hold plates in position for welding.

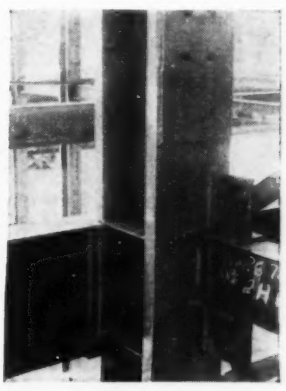


Fig. 3. Corner of elevator opening showing only place where cross-bracing is employed.

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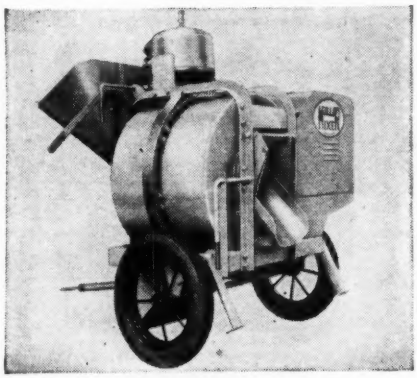
CONCRETE MIXER—New 3½-S non-tilting concrete mixer has drum and drumheads of heavy steel plate which revolve on wide solid rubber rollers with guides to hold true running location and prevent weaving of drum. Automatic water tank for pre-



determined quantities of water for each batch. Drum is gear-driven, and heavy roller chain transmits power from engine to countershaft. Complete unit weighs 1,000 lb.—**Muller Machine Co. Inc., Metuchen, N. J.** *(206)*

TWIN JAW CRUSHER—Two movable jaws operated by two eccentric shafts and double set of flywheels are features of new line of jaw crushers. They are specially suited for installation in portable plants because of reduction in drives and savings in space by combining lengths, heights and widths of two crushers into one. Four sizes are available: 12x16, 16x24, 12x36 and 18x36.—**Iowa Mfg. Co., Cedar Rapids, Iowa** *(166)*

ROAD PATROL—Light, fast Trojan Road Patrol features redesigned front and rear axles for added strength, greater clearance, increased flotation and better traction. Unit has center control for easy steering, and aircraft-type hydraulic fittings. Weighing 10,500 lb., Welterweight is

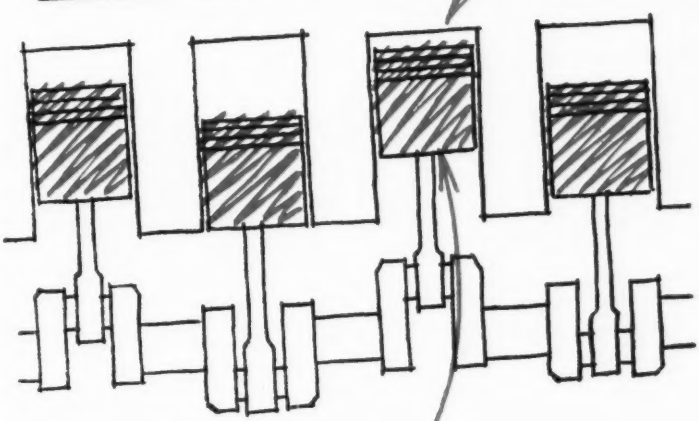
claimed to have strength and power to handle practically "anything on the road" and all routine road maintenance. Extras include scarifier, bulldozer, V-type snow plow and cab or canopy. Leaning front wheels are available as a factory installed extra.—**Contractors Machinery, Batavia. N. Y.** *(209)*

LUBE MEMO

Engine overheating caused by stuck rings

Compression loss 30%

400 400 280 400



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Foreman claims RPM DELO Diesel Engine Lubricating Oil's compounds will prevent stuck rings 3 ways:

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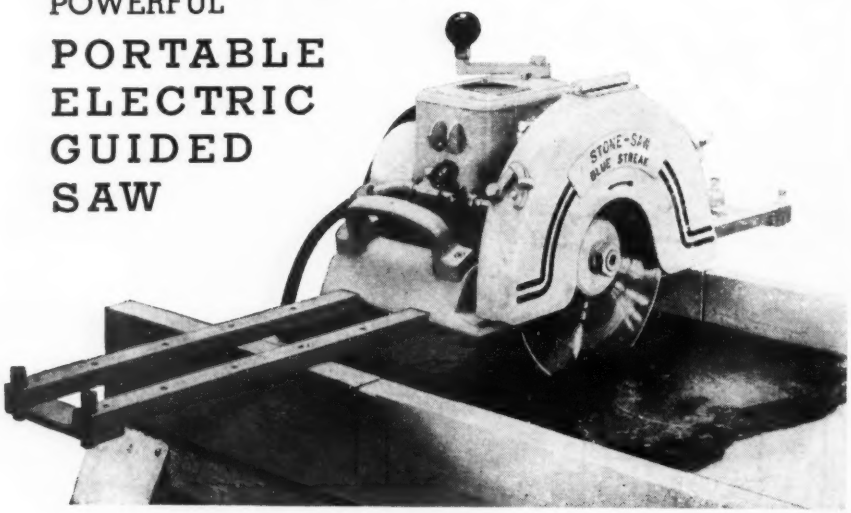

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NUT SETTER—Lightweight, heavy-duty Speed-o-matic electric torqueless impact nut setter. Will not twist in operator's hands. Operates at 1,750 rpm. at free speed. At point of resistance delivers 3,000 im-

pact blows per min. Unit is reversible for running bolts or nuts. Operates on 110-v., 60-cycle ac. or dc. circuit. Weighs 13½ lb. Capacity up to ¾-in. bolts and nuts.—**Illinois Gage & Manufacturing Corp., 4639 W. Washington Blvd., Chicago 44, Ill.** *(179)*

LOCOMOTIVE CRANE — Diesel-locomotive crane with speeds up to 15 mph., and ruggedly built to perform heavy-duty switching operations as well as to handle heavy lifts, is offered in capacities ranging upwards from 30 tons. Diesel-electric combination permits power to be transmitted directly to axles by inside hung spring suspended motors. Important design feature of the Brownhoist locomotive crane is patented Monitor-type cab giving operator 360-deg. visibility. Electric swing is available at additional cost. Standard features include: Air-operated controls, anti-friction bearings, 14-in. safety clearance between rotating bed and car body, and safe worm-driven boom-hoist.—**Industrial Brownhoist Corp., Bay City, Mich.** *(236)*

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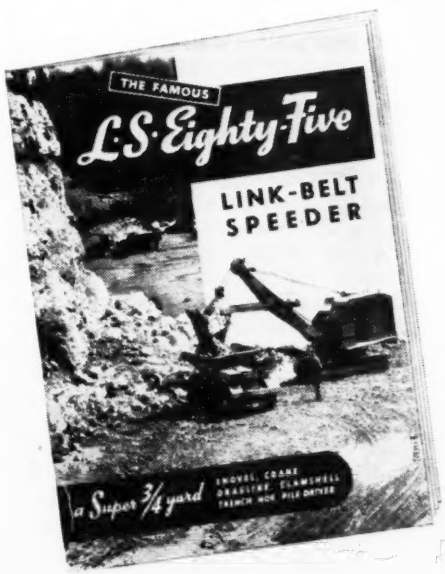

Go to your distributor and ask to see the LS-85 or ask for a catalog, and study its features, and you'll quickly understand why it has earned the name "A Super ¾ yd. Shovel-Crane." In every detail you'll find extra power, stamina and endurance. Balanced weight, large turn-table, hook rollers and oversize center pin give ground-hugging stability, extra digging and lifting capacity, and perfect control.

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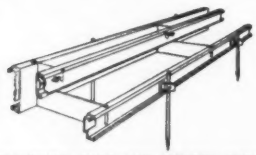
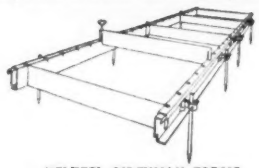


COMBINED CURB AND GUTTER FORMS

Each 10' section consists of 1 back curb form, 1 front gutter form and 1 face curb form, also 2 face curb form supports, 2 round stakes for back form and 2 round stakes for gutter form.



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10' sections, slotted every 12" for division plates, which are removed without disturbing side forms after concrete takes its initial set.

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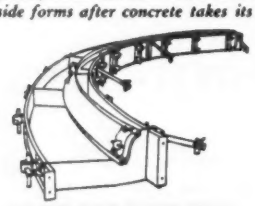
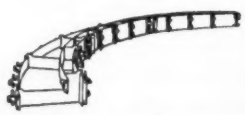


HELTZEL RIGID RADIUS FORMS

For building concrete curbs or curb and gutters when all intersections or corners must match. Heltzel forms made in sets to form a specified radius.



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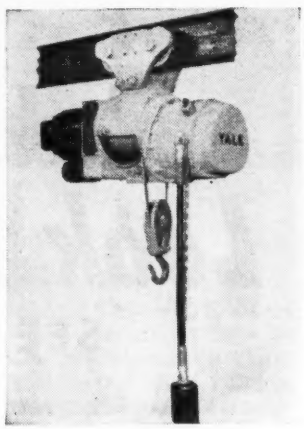
ELECTRIC HOIST—Low-cost Load King wire-rope hoists have ¼-, ½- and 1-ton capacities. Frame of portable hoist is heavy, one-piece, ribbed steel casting, for use with lug, plain



trolley, motor trolley, or winch-type mounting. Quick-lifting hoist is equipped with large-diameter drum with machine-cut grooves to guide cable as it winds—**The Yale & Towne Mfg. Co., Philadelphia Division, 4530 Tacony St., Philadelphia 24, Pa.**

HEAVY-DUTY JACKS—Load pump and speed pump are combined into one unit on new 30- and 50-ton hydraulic jacks. Load pump cuts in automatically when speed pump has raised saddle to load. Bases are machined from steel blocks 2¾ in. thick to withstand extreme stress. Other features include recessed safety release valve, overall closed construction, ports for gage or valve installation, pump beam protection, carrying handle, and on-the-side operation. Both models are one-man operated.—**Blackhawk Mfg. Co., Milwaukee 1, Wis.** *(144)*

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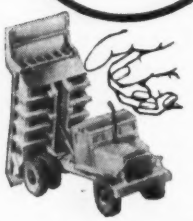

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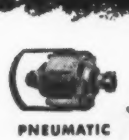
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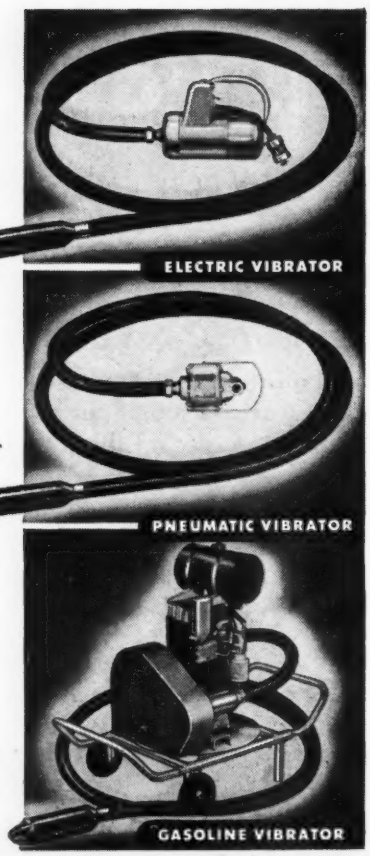

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CONCRETE REINFORCEMENT BAR — Deformed dumbbell-shaped bar is cold spiral bent and stretched to increase yield point by 50 percent. Great bond strength of Webrib is derived from its shape and its transverse ribs. Manufacturers guarantee that the minimum yield point is not less than 60,000 lb. per sq.in., permitting engineers to design at a stress of 30,000 lb. per sq.in.—**Webrib Steel Corp., 120 Broadway, New York 5, N. Y.** *(205)*

FUEL ADDITIVE—Induco Fluid, an additive for diesel fuel oils which produces more power with more economical use of fuel, while reducing oil sludging, is now being marketed. The fluid takes quick chemical action against the sulphur, rosin, gum and tar content of the average fuel oil, turning them into readily igniting substances. Clean fuel and easier engine-starting result.—**Industrial Chemical Corp., 12,130 South Main St., Los Angeles 3, Calif.** *(224)*

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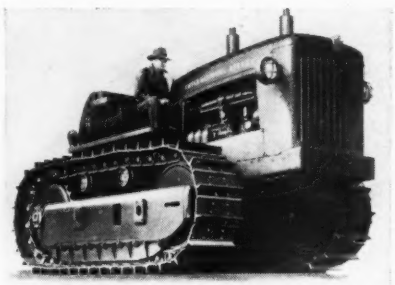
(For more information on new products, use coupon, p. 116.)

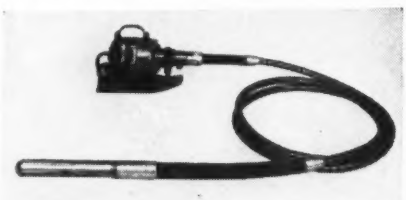
CRAWLER TRACTOR — International TD-24, 180-hp. diesel tractor, is 182¼ in. long, 102 in. wide and 88 in. high to top of radiator. With 6-roller track it has 101⅜ in. of track length on the ground, providing 4,460 sq.in. of ground contact and 1,513 sq.in. of bracing grouser area with regular 22-in. shoes. With water, fuel, and lubricants it weighs more than 38,000 lb. Six-cylinder, 4-cycle diesel gives 180 hp. at flywheel,



167 belt hp. and 140 drawbar hp. Planet-power steering under fingertip control with new hydraulic system permits gradual turns with both tracks pulling or pivot turns with one track locked and other under full power. Pilot models have been tested under all service conditions for more than two years.—**Industrial Power Division, International Harvester Co., Melrose Park Works, Chicago, Ill.** *(204)*

CHIPPING HAMMER — Improved weld-chipping hammer has handle machined to fit drilled hole in head and is silver brazed into hole so that head can never "fly off the handle." **—Atlas Welding Accessories Co., 707 East Lewiston, Ferndale, Detroit, Mich.** *(225)*

CONCRETE VIBRATOR — Non-eccentric rotor is feature of high-frequency vibrator giving 13,000 vibrations per min. with shaft speed of only 3,200 rpm. Vibrator head needs no lubrication; flexible shaft can be lubricated in 20 sec. Designed and built for long, uninterrupted

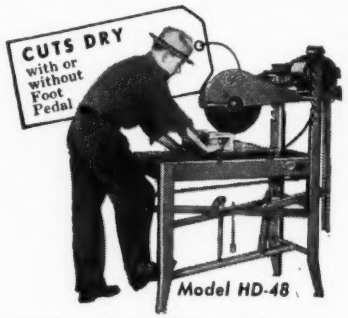


operation, vibrator is powered by 1- or 3-phase electric motor, 1-cylinder gasoline engine or air motor.—**Vibro-Plus Corp., 243 West 55th St., New York, N. Y.** *(238)*

FASTER CUTTING

WET or DRY with the NEW HD 48 CLIPPER Masonry Saw

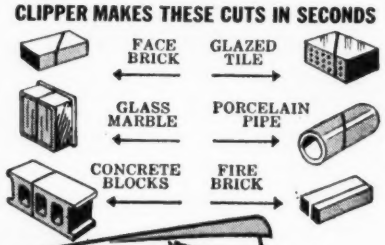
You'll be amazed how quickly and easily you can cut virtually any special length or shape from the hardest masonry materials. Clippers save time — save material, assure better workmanship on every job.



With the exclusive Clipper design, proven throughout the world and guaranteed to provide the fastest cutting speed and the lowest cutting costs.

DUSTLESS MASONRY CUTTING so fast and easy. Just turn on the circulating water system and slice through the hardest masonry materials. Foot Pedal control for varying material sizes or lock the cutting head at a set position, whichever is desired.

CLIPPER MAKES THESE CUTS IN SECONDS



FREE TRIAL

In keeping with our policy for the 10th consecutive year, you can have a Clipper on Trial. Clippers for Every Job priced as low as $195... write for Catalog, Today!

THE CLIPPER MFG. CO.

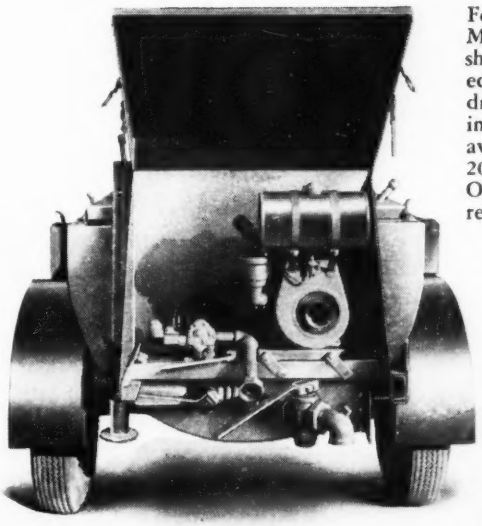
2809 WARWICK • KANSAS CITY 8, MO.

PHILADELPHIA CLEVELAND ST. LOUIS AUSTIN, TEX.

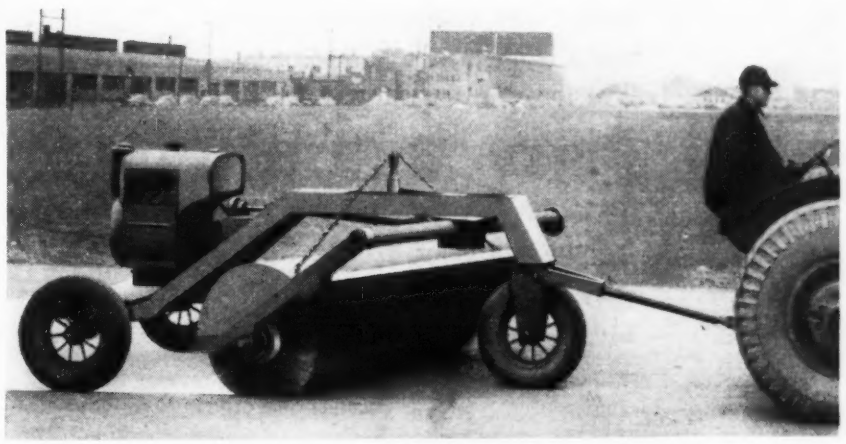
ASPHALT EQUIPMENT That Lowers Your CONSTRUCTION AND MAINTENANCE COSTS

The Model SJ equipped with a 100 G.P.M. Pump, powered by a 7.2 h.p. engine, will handle any type of material through spray bar lengths up to 10 feet. Two powerful burners pour heat through 5 inch heat flues—assures fast heating. Single lever controls all operations—spraying shoulders, relocating curves, hand spray, seal coating, patching chuck holes, or crack filling.

Model 957 Pressure Distributor shown above will handle all types of primary black top construction. Equipped with 350 G.P.M. Pump, 27 h.p. engine and completely full circulating spray bar.



For faster patching, the Model "S" Tar Kettle shown at the left is equipped with motor driven 10 G.P.M. pumping. Model S Kettle is available in 80, 110, 165, 200 and 350 gallon sizes. One man can operate—reduce labor costs.



The pull type construction and maintenance engine driven broom (also available in traction driven), shown ----- reduces cleaning costs. Broom suspended so that it is pulled into the road bed rather than pushed. Results in longer broom wear—lower replacement costs.

There is a dealer in your immediate territory. Write for details today.

OTHER PRODUCTS:
ASPHALT DISTRIBUTORS • TAR KETTLES • MAINTENANCE DISTRIBUTORS • BURNERS STREET FLUSHERS • SPRAY UNITS • SUPPLY TANKS SURFACE HEATERS • SHOULDER ROLLERS . . . and Agricultural Equipment.

Built to the Highest
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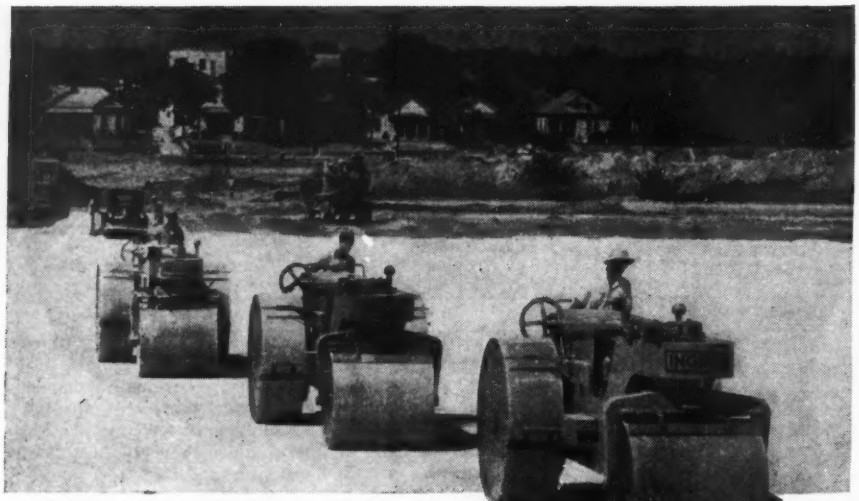
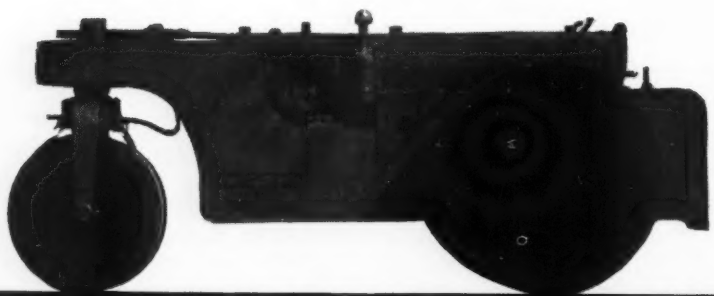
Standard Steel Works NORTH KANSAS CITY, MO., U.S.A.



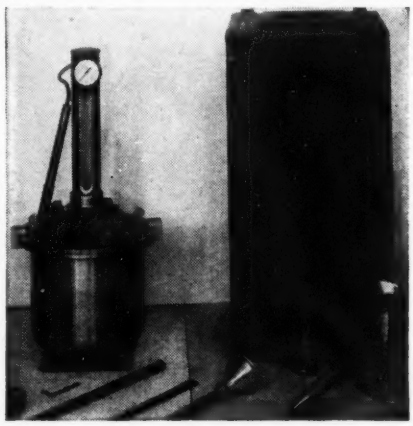
INGRAM ROLLERS

OPERATORS WORK FASTER AND BETTER with an Ingram Roller because the Ingram is easier to hold on straight-line rolling —easier to turn, too! But that's only one reason why contractors get greater profits from their Ingram Rollers. Five forward speeds—five reverse—electrically welded frame—full-length axles . . . these and many other features mean reduced operating cost. But let your Ingram distributor give you the complete story on every model—5 to 12 tons with variable or constant weight.



ACME IRON WORKS • SAN ANTONIO, TEX.

ENTRAINED AIR INDICATOR — Pressure-type indicator of 0.44 cu. ft. capacity measures air content of concrete containing up to 3-in. aggregate. Sample of fresh concrete is placed in bowl, conical cover is clamped in place and filled with water, pressure is applied by hand air pump and entrained air in concrete is compressed in accordance with Boyle's law. Air content of sample is read directly as percentage of volume. Manufacturer gives in-



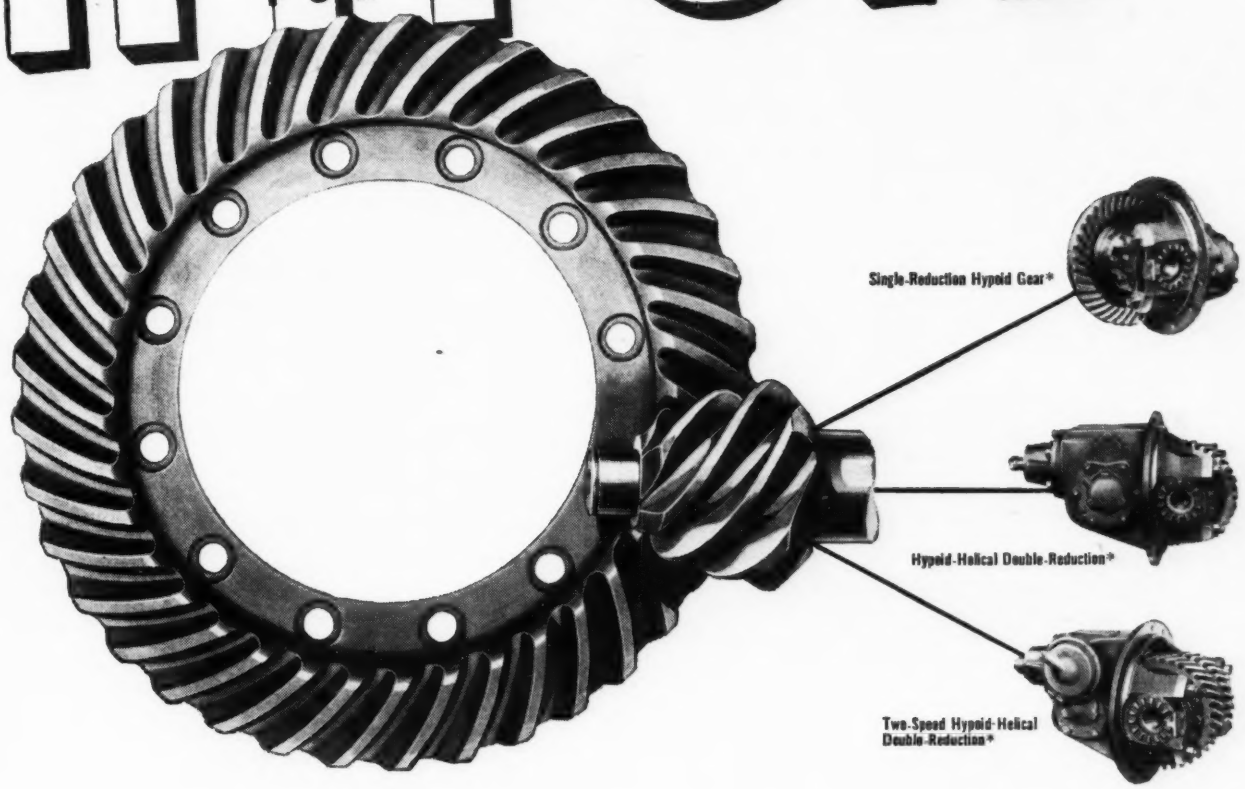
formation on procedure for determining entrained air in fresh concrete and also for finding aggregate correction factor; as well as for expansion factor for indicator, which is calibrated to determine operating pressure. Complete air determinations take only 7 to 8 min. after concrete sample strike-off. Unit, with case, weighs 93 lb.—**Robert Tarrant Mfg. Co., 325 West Illinois St., Chicago, Ill.** *(234)*

LIGHTWEIGHT PUMPS — Faster automatic priming, priming at higher suction lifts, higher pressure and greater capacity are features of Gorman-Rupp's lightweight portable general utility pumps, all powered by single-cylinder, 4-cycle air-cooled gasoline engines. Pumps are: 1½-in., 62-lb. Midget with 1½-hp. Lawson or Briggs & Stratton engine; 2-in., 110-lb. Hawk with 2.8-hp. Wisconsin engine; 3-in., 117-lb. Eagle with 5-hp. Wilson engine. Respective maximum capacities at 30-ft. head are 86,156 and 280 gpm.—**Gorman-Rupp Co., Mansfield, Ohio** *(215)*

FLOOR SEALER—Penetrating deeply into wood floor, sealer is said to leave no surface film to be worn away by traffic, sealing up all pores so that dust, dirt and grime cannot seep through or be ground in. Produces smooth but non-slippery finish on any type of wood floor.—**Vita-Var Corp., Newark, N. J.** *(231)*

HYPOID!

FOR HY-PERFORMANCE



TIMKEN-DETROIT HAS IT!

(AND ONLY TIMKEN-DETROIT)

In all 3 types of final drives!
In a complete range of capacities!

*Interchangeable in same axle housing using the same axle shafts.

There's something new and better in the medium- and heavy-duty axle field. It's Timken-Detroit HYPOID gearing—in all three types of final drives—in a complete range of capacities.

You get Hy-Performance from HYPOID—lower operating costs, lower maintenance costs and longer life too. The pinion is bigger and stronger—bearings are bigger—more teeth are in contact, reducing loading per unit of contact area. Torque-transmitting capacity is increased. Slower gear ratios are practical without loss of strength.

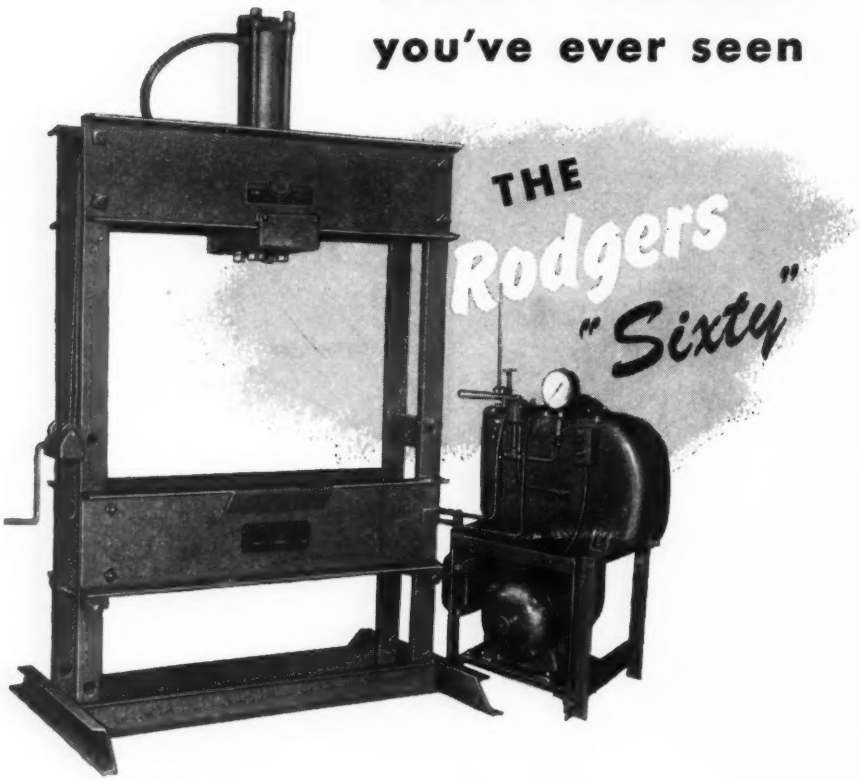
Only from Timken-Detroit HYPOID gearing can you get these big advantages that spell money-making truck performance. Look *under* the next trucks you buy. Demand *modern* axles—Timken-Detroit 3-for-1 Axles.

TIMKEN Detroit AXLES

A PRODUCT OF THE TIMKEN-DETROIT AXLE COMPANY
DETROIT 32, MICHIGAN

TIMKEN AXLES DTA TRADE MARK REGISTERED

The most *Versatile, Practical* SHOP PRESS you've ever seen



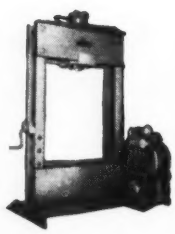
BEHIND the label—Rodgers "Sixty" 60 Ton Shop Press with power driven hydraulic pump—is a flexible, highly efficient production unit that will prove invaluable in taking care of those many miscellaneous time and labor consuming jobs. Powered with the Rodgers "D" pump and newly-designed four-way valve, it has all of the desirable features of a streamlined press for general shop use where pressures up to sixty tons are required.

Outstanding features include: An 8" opening between columns permitting long work to be slid through either end of press without obstruction; ram and cylinder may be moved into various positions on the press without changing placement of work; bottom bolster can be raised or lowered easily with a hand crank; and V-blocks for innumerable uses in any position on the bolster. Power pumps are available with or without four-way valve—and in manual or solenoid control.

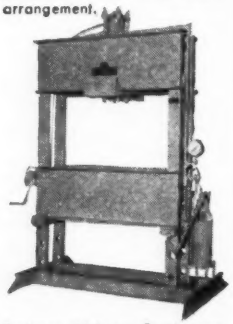
The "Sixty" is but one of the Rodgers series. Standard shop presses are available in 100, 150 and 200 ton sizes, with 300 and 400 tons capacity presses made to order. All include the same proved Rodgers design and performance features. All are rugged, durable, flexible and versatile.

There is a Rodgers Shop Press exactly suited to your needs in any tough service and maintenance work in pressing, squeezing and forcing. Prompt delivery on standard models.

Send today for your copy of the "Rodgers Hydraulic Shop Presses" catalog. It gives complete descriptions, illustrations and specifications of the various models.



Rodgers 150 ton Stationary Shop Press with hydraulic "D" pump and four-way valve arrangement.



Rodgers 100 ton Stationary Shop Press with 4-speed, hand-operated hydraulic pump.

Rodgers Hydraulic, Inc.

HYDRAULIC POWER EQUIPMENT

7403 Walker St., St. Louis Park, Minneapolis 16, Minn.

MASONRY SAW—Called "100 percent answer to masonry cutting," new HD-48 Versa-Tile Clipper saw cuts wet or dry with equal ease. For dustless wet cutting, pump on cutterhead circulates water from reservoir in saw frame. Cutting brick, tile, concrete, and fire brick, new saw features dual belt drive, snap-on blade cover, fully adjustable conveyor clamps, both elevating and non-elevating types. Multiple cutting action reduces friction heat, requires less power and keeps blade sharp for faster cutting and longer blade life. Catalog 77CM is available.—**Clipper Mfg. Co., 2800 Warwick, Kansas City 8. Mo.** *(216)*

BULLDOZERS — Drott Twin-Controlled tilting bulldozers and bull-angledozers are operated by Drott's closed hydraulic system. Name "Twin Control," is derived from twin pump arrangement, mounted and concealed on front of tractor. Each pump operates cylinder through separate valves to raise or lower either side of blade. Other features include: Close mounting of blade to radiator for better balance, good operator vision and simple rugged construction through "cradle lift."—**Drott Manufacturing Corp., Milwaukee 12, Wis.** *(235)*

Construction and Engineering for

PNEUMATIC PRESSURE GROUTING INTRUSION and CONCRETE WORK

RESTORATION—and strengthening of weak, ruptured or impaired structures.

SOIL STABILIZATION—by deep subgrade consolidation of filled ground, silt deposits or other unstable ground formations.

SEALING—of subterranean flows of water under buildings, dams, and other structures. Construction of submerged Dams, Groundwater control for Mines, Subways, Aqueducts, Seawalls, etc.

CEMENTATION—of loose or fractured rock strata, gravel or rip-rap deposits to prevent danger from slides, falls, or infiltration.

PRESSCRETE FOUNDATION PILES—built-in-place without vibration, noise or ground disturbance. No limits to length, size or shape.

PRESSCRETE ENCASING—For repair or protection of maritime foundation piling attacked or endangered by teredos, dry-rot, fire, rust, impact, abrasion or other marine hazards.

Write for complete information.

The Presscrete Co.
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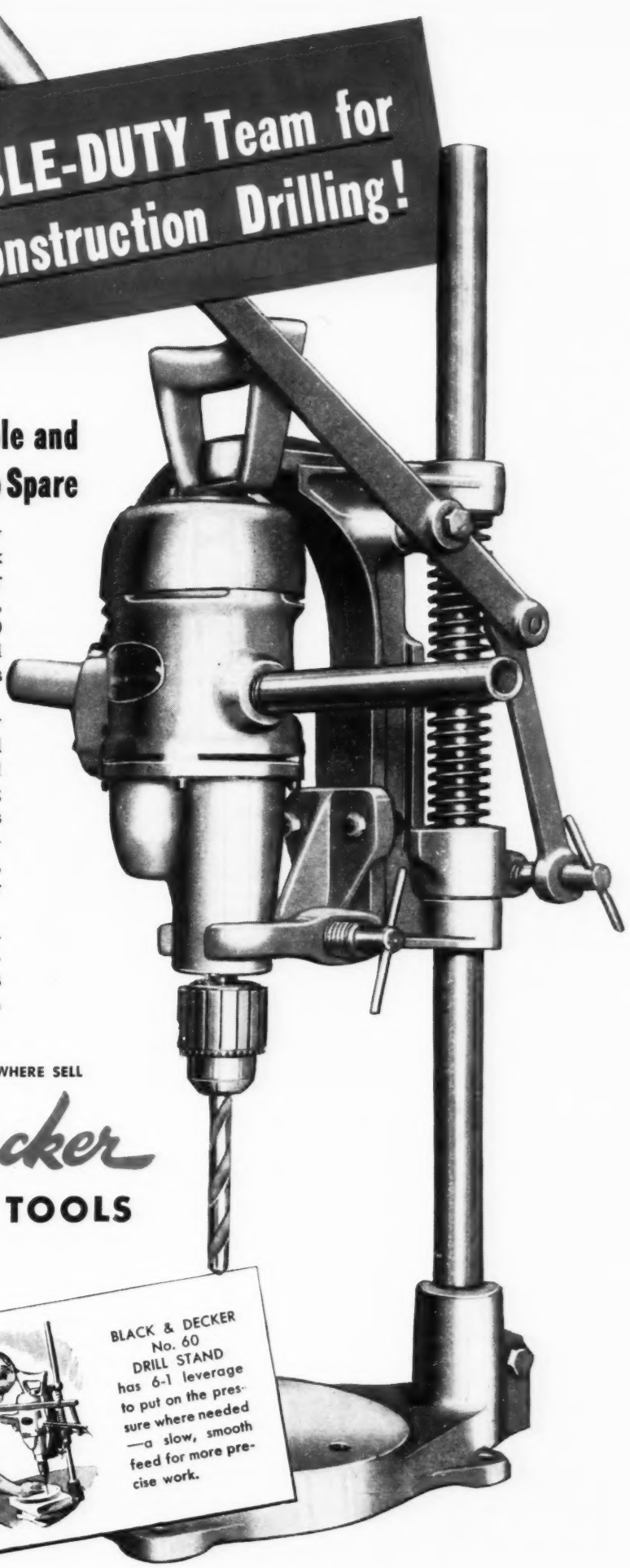
243 Graybar Bldg. - New York 17, N. Y.

Here's Your DOUBLE-DUTY Team for HEAVY-DUTY Construction Drilling!



Same Drill Does Both Portable and Stationary Work with Power to Spare

The Black & Decker 5/8" *Heavy-Duty* Electric Drill gives you *extra* chuck capacity and *extra* power for your toughest drilling and boring jobs. And, mounted in a Black & Decker No. 60 Drill Stand, it makes a powerful drill press that saves muscle and man-hours in stationary drilling!

You can run this Drill *continuously* in drilling through metal; driving wood augers through heavy timbers and planking; "framing up" concrete forms; tying rafters together. That's because its heavy-duty, B & D-built motor is specially constructed for *constant* service, operates from standard power line or portable generator.

Ask your nearby Black & Decker Distributor for full information. Write today for our catalog to: The Black & Decker Mfg. Co., 659 Pennsylvania Ave., Towson 4, Maryland.

LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker

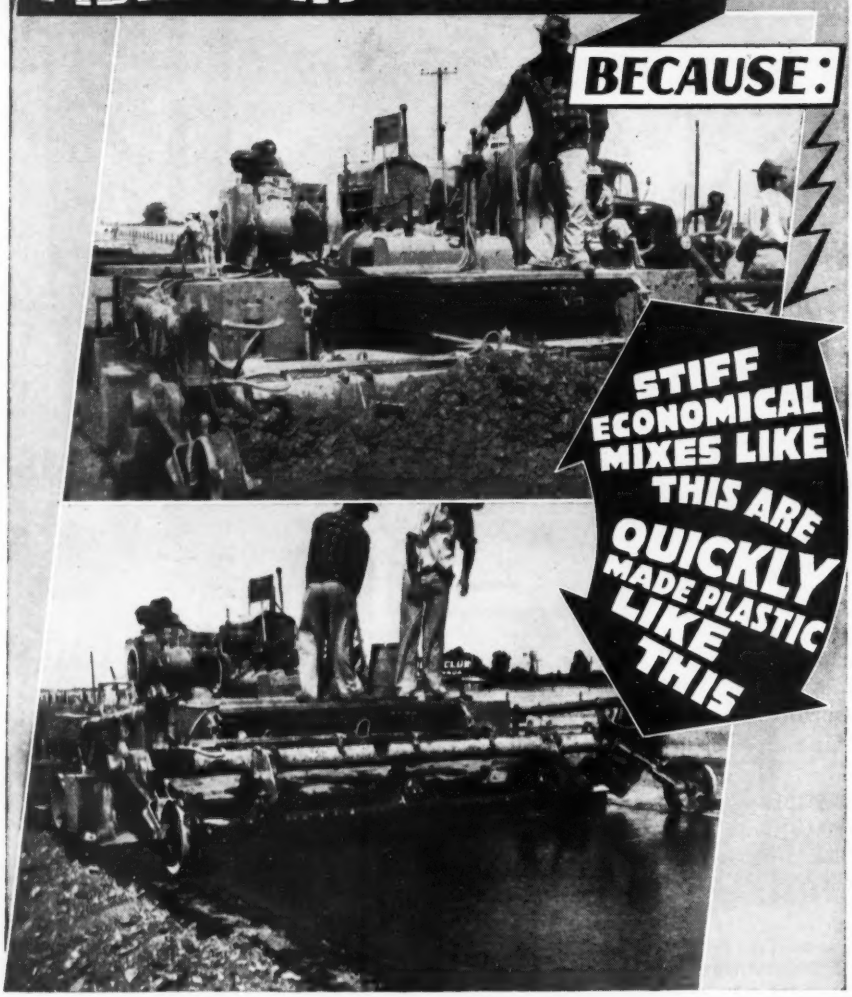
PORTABLE ELECTRIC TOOLS

BLACK & DECKER 5/8" HEAVY-DUTY DRILL drives twist drills up to 5/8" in steel—wood augers up to 1¼" in hardwood—Hole Saws up to 3½".

BLACK & DECKER No. 60 DRILL STAND has 6-1 leverage to put on the pressure where needed—a slow, smooth feed for more precise work.

HIGHWAY ENGINEERS SPECIFY
and CONTRACTORS USE

The JACKSON VIBRATORY PAVING TUBE



DON'T BE LATE FOR '48!
GET THESE ADVANTAGES!

Important savings in cement can be made. Finishing progress is much more rapid. Concrete at forms and joints is puddled perfectly. Spreading costs reduced. Complete compaction and excellent finish obtained with less labor.

The JACKSON Paving Tube is perfectly adaptable to slabs 6" to 24" thick, without affecting the efficiency on single or two-course standard plain or reinforced concrete pavement construction and may be quickly adjusted from 10' to 25' widths in the field. Power Plant mounted on the Finisher has ample reserve power through entire frequency range of 3000 to 5000 VPM. Finger tip controls. Quickly and easily attached to any standard finisher — and can be attached to the rear of standard spreaders to advantage for vibrating the first course in thick slab construction. One of the best investments in equipment a paving contractor can make. See your Jackson distributor or write for further information **NOW**.

Manufactured by ELECTRIC TAMPER & EQUIPMENT CO. *for*
JACKSON VIBRATORS, INC. LUDINGTON, MICH.

RUNWAY SUPPORTS—Adjustable-height scaffold beam, to support runways over which concrete is buggied to foundation forms, is oversize 4x4 with steel fittings bolted to each end. One end hooks over form panel; other is wedge clamped to 2x4 post. Easily erected and removed, each beam saves 10 to 20 min. per job, according to manufacturer. Wooden 1x4-ft. splashboard that clips over form to prevent concrete spillage is also announced. Runway beams and splashboard are designed for use with Symonds standard panel forms or equivalent.—**Symonds Clamp and Mfg. Co., 4265 Diversey Ave., Chicago 39, Ill.** *(214)*

AIR LINE HEATER—Weighing only four pounds, heater for use with air-supplied respirators and abrasive masks assures wearer a supply of comfortably warm, thermostat-controlled air to breathe even in temperatures of 30 deg. below zero. Unit consists of electric heater, heat exchanger and thermostat inclosed in rubber covered cylinder 11 in. long, outside diameter 2½ in., worn clipped to rear of user's belt. There is no interference with worker's movements.—**Mine Safety Appliances Co., Pittsburgh, Pa.** *(229)*

National
Carbide
FLOODLIGHTS

FOR ALL PURPOSES FOR WHICH FLOOD-LIGHTS ARE REQUIRED

Simple in construction
Economical in Cost
Dependable in Operation
Available in 1500, 8,000 and 16,000 candlepower units.

National Carbide N-200 Light illustrated. Write for literature showing entire line of Floodlights and Lanterns.

NATIONAL CARBIDE CORP.
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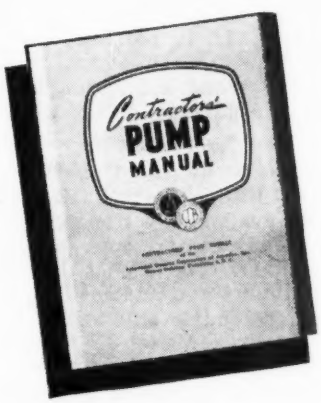
New York 17, N. Y.

THIS A.G.C. RATING PLATE TAKES THE GUESSWORK FROM PUMP BUYING!

CRYSTAL GAZING is eliminated when you buy a pump with an A.G.C. Rating Plate. There is no guesswork about the pump's actual capacity — the work it will do. What is more, new and higher standards for pumping performance have now been set by the Contractor's Pump Bureau. For example, pumps formerly warranted to deliver 20, 65, 105 and 325 G.P.M. at static lifts of 10 ft. and heads of 70 ft. are now rated to deliver 85, 110, 160, and 415 G.P.M. at the same lift and head. The Member Manufacturing Companies listed below are meeting these new Higher Head Standards as attested by the A.G.C. rating plate they place on their pumps.

Look for this A.G.C. Rating Plate on the next pump you buy. It takes the guesswork from pump selection. It assures greater output at higher heads—and much, much more for your money.

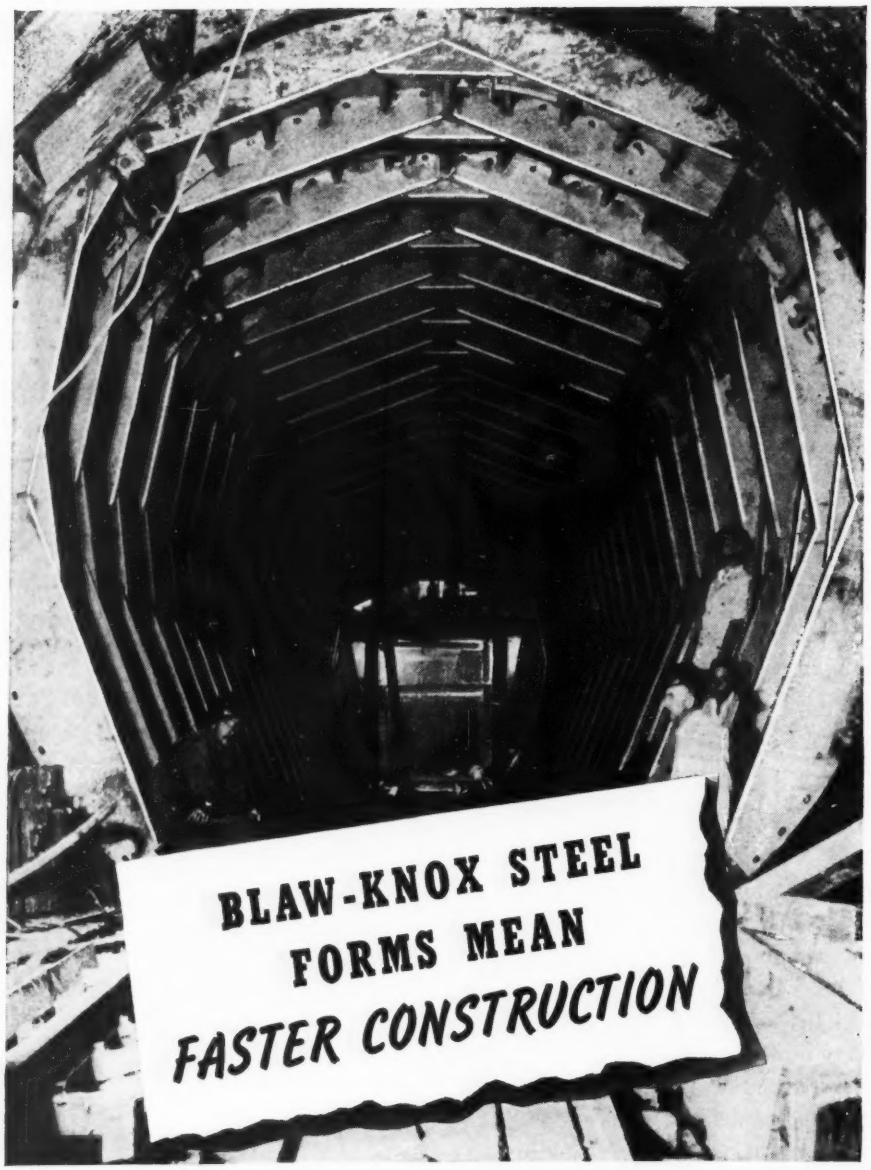


PUMP USER'S MANUAL

Forty pages packed full of useful information for the pump user. Answers all questions as to pump selection for the job — what size pump to use — the do's and don'ts of pump operation — standards for measuring heads and capacities — and other technical data. Contact your dealer or write any of the companies listed below for your copy.

CONTRACTORS PUMP BUREAU
(ESTABLISHED 1938)
Affiliated with
THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.
Munsey Building, Washington 4, D. C.

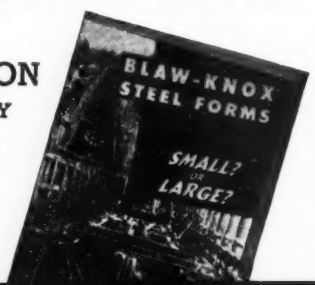
CONSTRUCTION MACHINERY CO., Waterloo, Iowa
THE GORMAN-RUPP CO., Mansfield, Ohio
THE JAEGER MACHINE CO., Columbus, Ohio
MARLOW PUMPS, Ridgewood, N. J.
NOVO ENGINE COMPANY, Lansing, Michigan
STERLING MACHINERY CORP., Kansas City, Mo.
WORTHINGTON PUMP & MACHINERY CORP., Holyoke, Mass.
BARNES MANUFACTURING CO., Mansfield, Ohio
CARVER PUMP COMPANY, Muscatine, Iowa
C. H. & E. MANUFACTURING CO., Milwaukee, Wisconsin
CHAIN BELT COMPANY, Milwaukee, Wisconsin



Sound engineering, rugged construction and a reputation for smooth practical performance is the unbeatable combination which Blaw-Knox steel forms give to contractors on big jobs.

Whether the job calls for heavy forms on tunnels and conduits, on low retaining walls or high multiple arch dams, Blaw-Knox forms assemble and strip readily, save time and manpower, and generally speed and improve the work.

BLAW-KNOX DIVISION
OF BLAW-KNOX COMPANY
2086 Farmers Bank Bldg.
Pittsburgh 22, Pa.



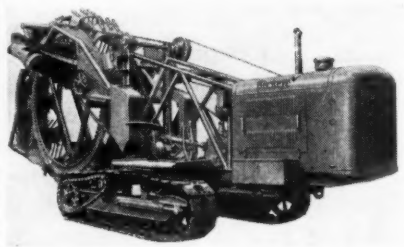
SEND for Catalog No. 2035 on steel forms for heavy construction.

BLAW-KNOX
STEEL FORMS

(For more information on new products, use coupon, p. 116.)

ELECTRICALLY - POWERED HAULER—New rig on large rubber tires has power and traction to negotiate almost any type of rough going, with loads from 20 to 100 tons. Engineered for both long and short hauls. Unique construction permits entrance into areas inaccessible to conventional-type trucks and trailers—especially in off-road operations. Two-wheeled prime mover is diesel powered. Equipped with a new type differential, greater traction is obtained since drive wheel having the greater traction pulls several times harder than the other, and most power is applied to whichever wheel is on the firmest footing. Several variations of the new equipment may be made to meet individual requirements of the hauling contractor. **—Tournalayer Sales Division, R. G. LeTourneau, Inc., Longview, Tex.** *(220)*

DITCHER — Buckeye model 312 ditcher said to offer greater range, simplified controls and better balance, cuts a ditch 16 to 30 in. wide, depending upon the buckets used, and up to 6 ft. deep. Digging wheel



is supported by rugged frame of tubular members. Diesel engine develops 67 hp. at 1,600 rpm. Digging speeds up to 57.5 ft. per min. Four forward and four reverse road speeds.—**Gar Wood Industries, Inc., Findlay, Ohio.** *(211)*

TILT TRAILERS—Two new tilt-type trailers are available for transporting tractors, rollers, compressors, shovel-loaders, mixers, etc. Model JT-408 has capacity of 8 tons and entire load is carried on tandem axle with four wheels and tires. Model JT-205 has single axle and capacity of five tons. Both models are perfectly balanced so one man can raise or lower the platform. Platform is so designed that load may be shifted to transfer any desired weight to rear of truck when greater traction is required. Positive automatic safety lock holds platform in position when loaded or empty. Rubber-mounted drawbar absorbs road shocks.—**C. R. Jahn Co., Savanna, Ill.** *(165)*

Now! BIGGEST FORD TRUCKS EVER BUILT!

NEW FORD BIG JOBS

GROSS TRAIN WEIGHT RATINGS UP TO 37,000 LBS.

G.V.W. RATINGS UP TO 21,500 LBS.

TRUCK BODY AND PAYLOAD RATINGS UP TO 14,200 LBS.

Plus! Hottest new truck line ever offered by the Leader in Trucks Built and Trucks in Use!

They're red-hot! Ford *Bonus** *Built* Trucks for '48 are the hottest trucks in Ford history! Over 139 new models for the widest job coverage ever! Three new engines, a Six and two V-8's! New Million Dollar cab! New BIG JOBS! Dozens of new features, plus the unparalleled know-how of the truck maker who has built more trucks than anyone else, and has more trucks in use today! For 30 consecutive years there have been more Ford Trucks in use than any other make! See your Ford Dealer today!

***BONUS:** "Something given in addition to what is usual or strictly due."—Webster*

BUILT AND WARRANTED FOR UP TO 37,000 LBS. GROSS

NEW HIGHER RATINGS!
Gross Train Weight up 48%
Gross Vehicle Weight up 42%
Truck Body and Payload up 39%.

Series	Gross Train Weight	Gross Vehicle Weight	Truck: Body and Payload
F-7	32,500 lbs.	19,000 lbs.	12,500 lbs.
F-8	37,000 lbs.	21,500 lbs.	14,200 lbs.

145 HORSEPOWER V-8 TRUCK ENGINE!
45% more horsepower than "239" V-8! 337 cu. in. displacement. 255 lbs-ft. torque at 1800 r.p.m.

UP TO 10.00-20 TIRES!
Single front and dual rear. 9.00-20's available on the F-7 BIG JOB.

NATIONWIDE SERVICE!
Ford BIG JOBS are backed by 6400 service stations—more than are available for any other trucks in this capacity range.

Listen to the Ford Theater, Sunday afternoons, NBC Network. See your newspaper for time and station.

FORD 1948 — *Bonus Built* — TRUCKS 1958

BUILT STRONGER TO LAST LONGER

LIFE INSURANCE EXPERTS PROVE AND CERTIFY . . . FORD TRUCKS LAST UP TO 19.6% LONGER!

Use Singly and in Pairs

Sonotubes

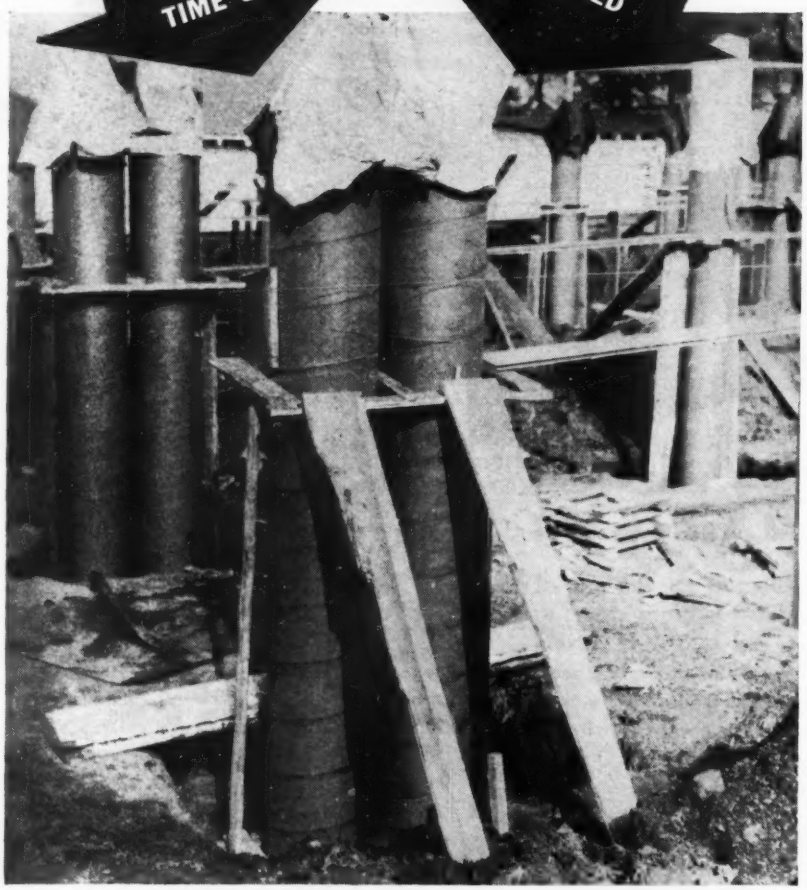
PAT. APP. FOR.

ARE NOTABLE MONEY-SAVERS AND TIME-SAVERS, TOO

CONCRETE PIER FORMS FOR ONE-TIME USE

IMMEDIATE DELIVERY

NOTE MINIMUM BRACING REQUIRED



SIX STANDARD SIZES

8" 9" 10" 11¼" 12" 13½" INSIDE DIAMETER

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. HARTSVILLE S. C. MYSTIC CONN.

sonoco "Serving the World" PAPER CARRIERS

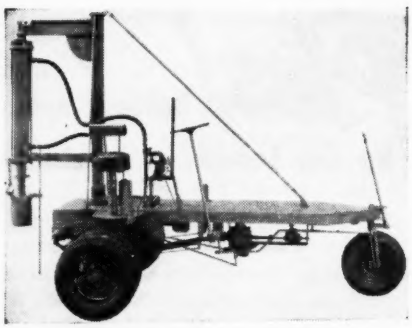
MASONRY WATER REPELLENT—"Rainchek" is colorless water repellent that penetrates cement blocks, concrete, brick, tile and stucco to give permanent protection against moisture and water. Guards against water seepage and tends to keep outside walls from becoming discolored from rain or ground moisture. Maker claims it controls dusting of cement floors.—**Protection Products Mfg. Co., Kalamazoo, Mich.** *(230)*

GATE VALVE—Said to be first application of full cylindrical body sections to bronze gate valves, new union bonnet valve provides maximum distortion resistance. Manufacturer lists these features: A silicon alloy stem material which eliminates stem-thread failures; hexagonal head gland; beveled disk wing guides and body guide channels to make assembly easy when servicing valve.—**The Lunkenheimer Co., Cincinnati 14, Ohio.** *(233)*

PIPE JOINT COMPOUND—In jumbo stick form this compound permits using only exact amount needed to insure perfect sealing. It is quick, clean, permanent and economical pipe joint sealer.—**Lake Chemcial Co., 607 N. Western Ave., Chicago 12, Ill.** *(202)*

BREAK PAVEMENT

the low cost way!



RAPID PAVEMENT BREAKER

cuts concrete and tamps back fill . . . will break inside floor and vertical walls. Cost of breaking and tamping is one-sixth to one-tenth other methods.

Write for Complete Information

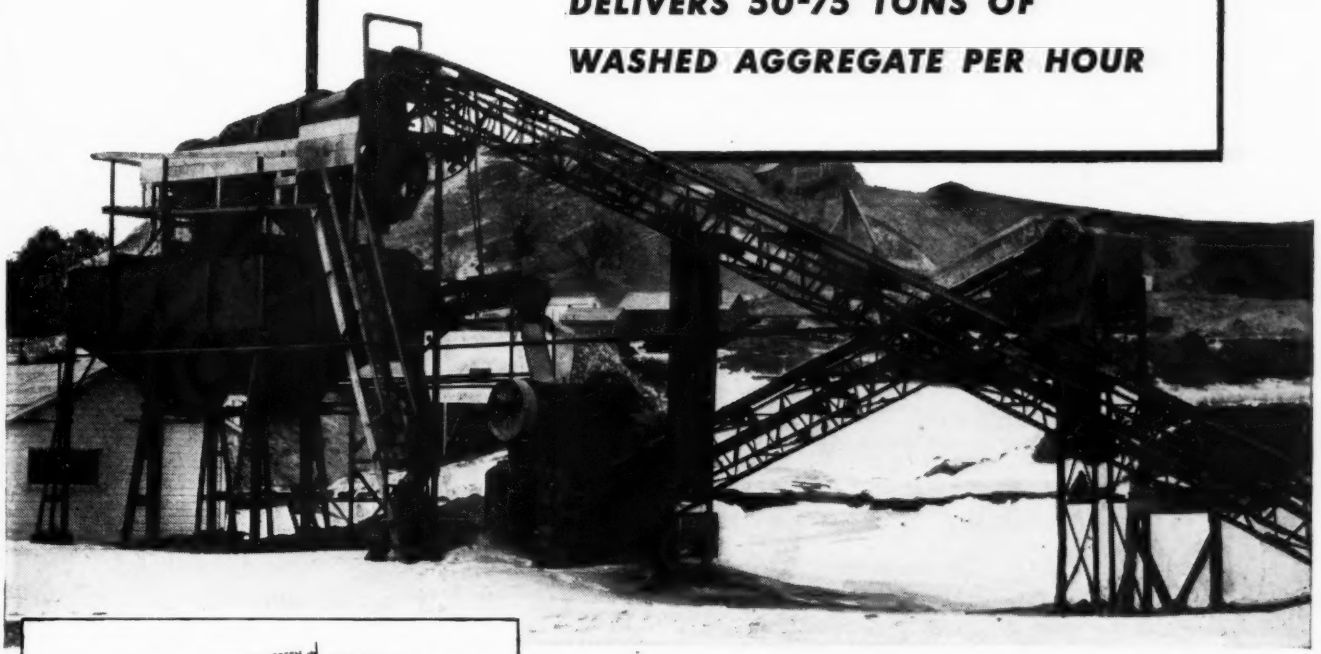
R.P.B. CORPORATION

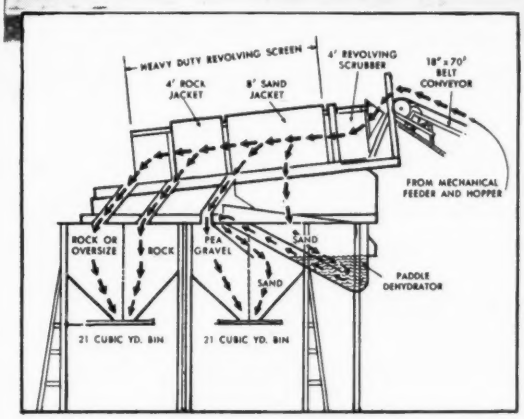
2751 EAST 11th STREET • LOS ANGELES, CALIFORNIA

Continuflo

Live Water Action

DELIVERS 50-75 TONS OF WASHED AGGREGATE PER HOUR





ASK ED LEARY of River Falls, Wisconsin about Pioneer Washing Plants. His plant, shown above, is producing three sizes of washed aggregate—1½", ¾" and sand for general construction and ready-mix concrete. Ed says, "Output—high! Maintenance—practically Z-E-R-O!"

4 SIZES OF AGGREGATE—scrubbed, washed, classified, and loaded. That's what this low-cost PIONEER Washing Plant will do for you. And it produces them—sand, pea gravel, and two sizes of rock—at a 50 to 75 ton an hour clip.

From the mechanical feeder to the four storage hoppers, engineered design and factory construction pay off. The PIONEER 305-W is quickly assembled and put to work, for all necessary drives, spouts and fittings are shipped with the plant.

The powerful *live water* action of the scrubbing and washing chambers breaks up chunks . . . loosens sticky material.

If you need washed aggregate for a job you'll be starting soon, ask your PIONEER distributor or write today for complete details about *Continuflo* Washing Plants. 60 to 90 day delivery.

PIONEER ENGINEERING WORKS
1515 CENTRAL AVENUE • MINNEAPOLIS 13, MINNESOTA

BUY BOTH!

Higher Output, Lower Upkeep!

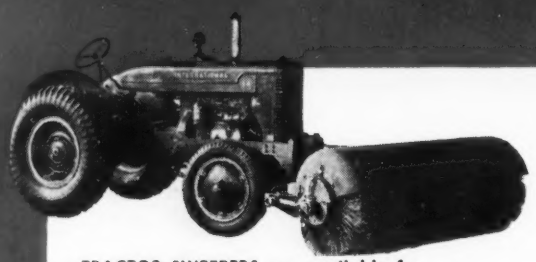
Pioneer

Continuflo **EQUIPMENT**

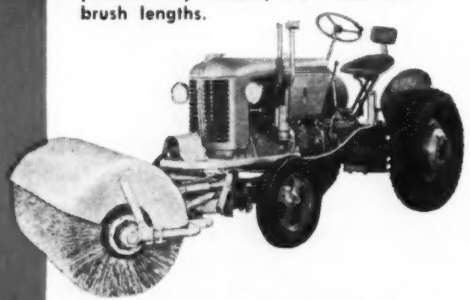
HOUGH
SAY "HUFF"

SWEEPER HEADQUARTERS

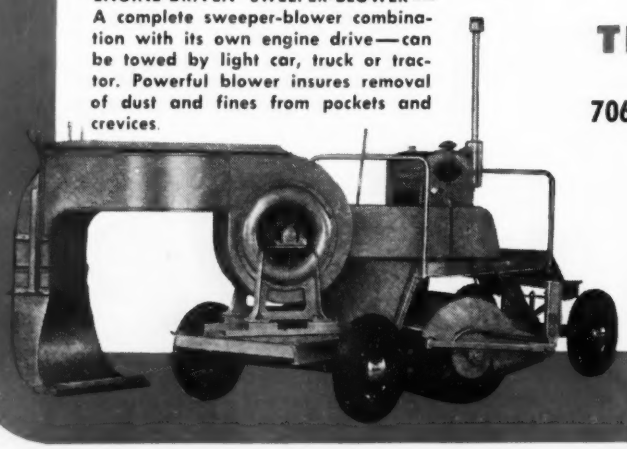
MODEL B UNIVERSAL ROAD SWEEPER: engine driven; sweeps to right or left; 78" path; selective brush speeds.



TRACTOR SWEEPERS are available for Case and International tractors — powered by tractor; 72" and 84" brush lengths.



ENGINE-DRIVEN SWEEPER-BLOWER — A complete sweeper-blower combination with its own engine drive — can be towed by light car, truck or tractor. Powerful blower insures removal of dust and fines from pockets and crevices.

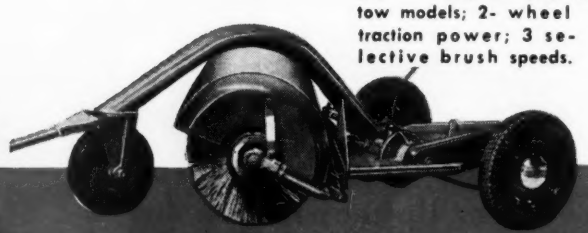


There's a Hough machine for every sweeping job. Sizes and types are available to remove snow, dust, debris, etc. from streets, alleys, highways, airport runways and aprons . . . . . to clean pavement for black top and other resurfacing, to clean tops of strip pit coal seams. Every unit is built to do a fast, complete job of sweeping . . . is the product of 27 years of sweeper-building experience. So, come to "sweeper headquarters" with your sweeper problems . . . . . write for full information and the name of the nearest Hough distributor.

THE FRANK G. HOUGH CO.

706 Sunnyside Ave. **Libertyville, Ill.**

TRACTION DRIVEN SWEEPERS — one or two-way tow models; 2- wheel traction power; 3 selective brush speeds.



"QUICK-WAY"* TRUCK SHOVELS BUILD BIGGER PROFITS

"QUICK-WAY" PORTABILITY
Correctly balanced for truck mounting and for strength with lightness. Travels on or off the road at truck speed.

"QUICK-WAY" ECONOMY
Low initial investment, low maintenance. Many equally efficient attachments for one operating unit—on one chassis.

"QUICK-WAY" INTERCHANGEABILITY
All parts of clutches, brake bands, hydraulic cylinders in clutches and control cabinet and many bearings are interchangeable.

"QUICK-WAY" OPERATING SPEED
Fast hoist and swing action mean more material moved per man hour—more profit on every job.

"QUICK-WAY" CONVERTIBILITY
Convertible in MINUTES from shovel to dragline, clamshell, crane, trench-hoe, pile driver, scoop, or backfiller.

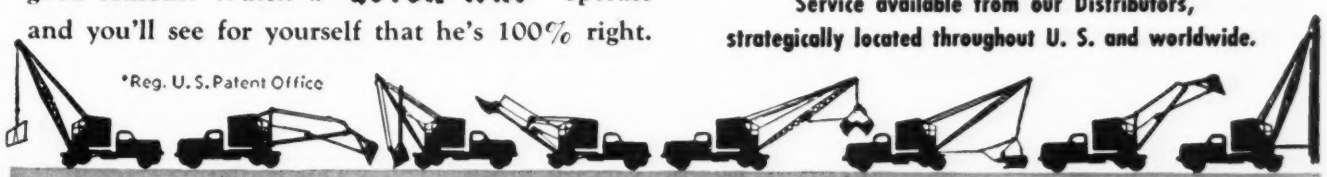
Any man who owns one or more **"QUICK-WAY"** will tell you they're big money-makers. Ask him why and he'll give you many good reasons. Watch a **"QUICK-WAY"** operate and you'll see for yourself that he's 100% right.

Regardless of what equipment you own, you need **"QUICK-WAYS"** too. Theres a **"QUICK-WAY"** owner near you: ask HIM.

Model E: 4/10 cu. yd. cap. for mounting on any standard 5-ton truck.
Model J: 1/4 cu. yd. cap. for mounting on any standard 1½-ton truck.

Service available from our Distributors, strategically located throughout U. S. and worldwide.

*Reg. U. S. Patent Office



For speed, portability, economy of operation, and adaptability to a wider range of jobs, nothing of comparable size equals a "Quick-Way" Truck Shovel.

"QUICK-WAY" TRUCK SHOVEL CO.
DENVER, COLORADO

PIONEER IN POWER SHOVELS FOR TRUCK MOUNTING; STILL THE LEADER AFTER 29 YEARS

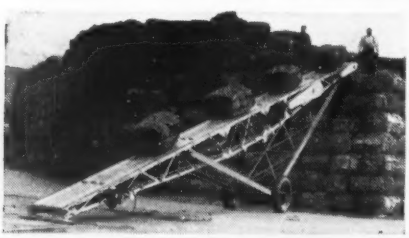
Unloads 1000 Tons of gravel in 6 hours

with Farquhar Trough Conveyor

SIX hours to unload over 1000 tons of road gravel—that's the pace set by this Farquhar Model 334-T Trough Conveyor for an Illinois contractor. Savings in time and back-breaking work more than paid for the initial investment.

General-utility Farquhar Trough Conveyors save time and man-hours handling sharp or abrasive materials, fine or powdery materials, small bags or bundles for contractors, processing plants, chemical plants, coal yards, road builders —wherever handling operations enter into the profit-or-loss picture. Low feed end of trough unit makes it efficient for unloading hopper bottom cars or for hand feeding.

Whatever your handling job—find out from us how to do it *faster, better, cheaper*. Farquhar offers a complete line of conveyors for portable, semi-permanent or permanent use—for all types of loose or packaged materials. Tell us your problem—we have the know-how to help you. Write for information to: A. B. Farquhar Co., *Conveyor Division,* 232 Duke St., York, Pa., or 622-A W. Elm St., Chicago 10, Ill.

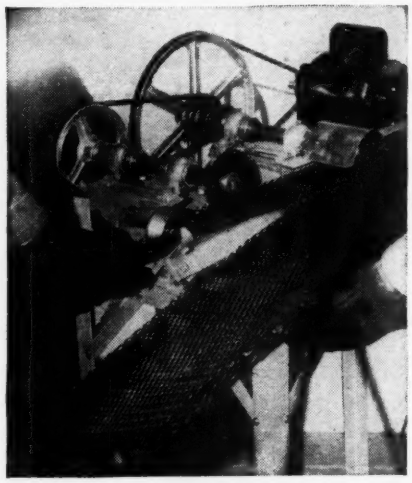


PILING BALES OF CORK at New Jersey processing plant is handled quickly, efficiently, economically by heavy-duty V-truck-mounted Farquhar Conveyor, Model 432. Easily handles bales or packaged goods weighing up to 500 lbs.

Farquhar
PORTABLE OR PERMANENT MATERIALS HANDLING
CONVEYORS

HYDRAULIC PRESSES • FARM EQUIPMENT • FOOD PROCESSING AND SPECIAL MACHINERY

METAL LATH CUTTER—Special-purpose machine for cutting expanded metal lath may be adjusted for width of strip and set to form angles for plastering ceiling corners and around doors. Manufacturer says machine has capacity of 5,760 lin. ft. of corner-rite per hr. and requires one

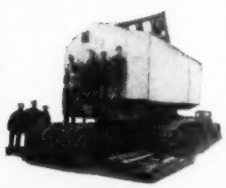


operator and helper. Machine consists of guide rail, guide angle, cap screw for opening or closing formed angle in material, follower roller and three collars for setting form roll. With or without motor and table.—**Switchfield Mfg. Co., 1905 Pacific Highway, San Diego, Calif.** *(203)*

TO COPE WITH LOW HEADROOM PROBLEMS

rely on
ROGERS
GIRDER TYPE TRAILERS

• This trailer is ideal for moving large cranes and shovels long distances at high speed.



ROGERS BROTHERS CORPORATION
220 Orchard Street
ALBION, PA.
• EXPERIENCE builds 'em
• PERFORMANCE sells 'em

NEW CHEVROLET
Advance-Design Trucks for 1948

Only Advance-Design Trucks for 1948 Have All These New and Finer Features:

★ **New Chevrolet 4-Speed Synchro-Mesh Truck Transmission** Entirely new Chevrolet developed Synchro-Mesh transmission assures truck users of unparalleled new ease and efficency in truck operation!

★ **New Chevrolet Advance-Design Gearshift Control** Unrivaled new convenience and ease of operation in Advance-Design models with 3-speed transmission. Gearshift is mounted on the steering column to provide new efficiency on every hauling job!

★ **New Foot-Operated Parking Brake** Here's a revolutionary new feature of Advance-Design Models with 3-speed transmission. The new Chevrolet foot-operated parking brake provides safer, more efficient braking, plus new, clear floor area!

★ **New Improved Chevrolet Valve-in-Head Engine** The world's most economical engine for its size—Chevrolet's power-packed valve-in-head engine is now *even finer*, with vital new features that assure greater durability and operating efficiency

★ **New Multiple-Feature Developments** Chevrolet's Advance-Design provides new splined rear axle shaft attachment to wheel hubs for greater strength and durability in heavy-duty models. . . . New heavier, more durable springs. . . . New propeller shaft bearing-seal design . . .

The Newest Line . . . The Greatest Features . . . The Biggest Values!

Here are the nation's biggest truck values —with the *latest* and *greatest* features of advance-engineering! They're new Advance-Design Chevrolet trucks for 1948 —107 models on eight wheelbases—built to deliver *Transportation Unlimited!* See them at your Chevrolet dealer's.

CHEVROLET MOTOR DIVISION, *General Motors Corporation*, DETROIT 2, MICHIGAN

CHEVROLET

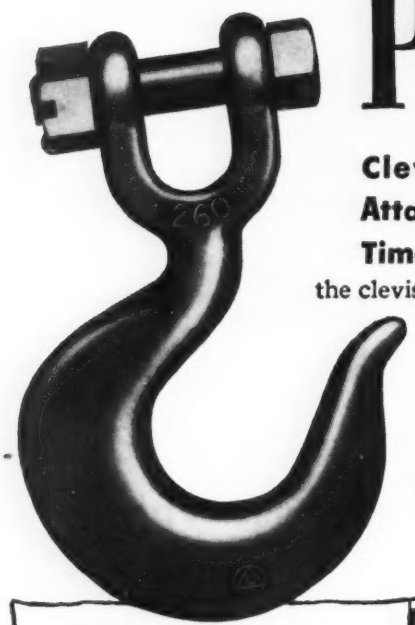
. . . PLUS THESE FAMOUS *PROVED* ADVANCE-DESIGN FEATURES:

The Cab that "breathes"* • Flexi-Mounted cab • Uniweld all-steel construction • Large, durable, fully adjustable seat • All-round visibility with rear-corner windows* • Extra-durable frames • Full-floating hypoid rear axles • Specially designed hydraulic truck brakes • Thorough cab-sealing insulation • Standard cab-to-axle-length dimensions permitting interchange of bodies . . . and *MANY* other fine features.

**Fresh air heating and ventilating system and rear-corner windows optional at extra cost.*

CHOOSE CHEVROLET TRUCKS FOR TRANSPORTATION UNLIMITED!

Here are Hooks that hoist your Profits!



Clevis Hoist Hook Is Quickly Attached . . . Changed . . . Saves Time and Labor. Slip the bolt through the clevis, spin the nut, spread the cotter and this heat-treated hook's ready and safe for your toughest jobs. No welding, no spelter, no connecting fittings required. Send for Laughlin's famous data book of industrial fittings... Catalog No. 140.

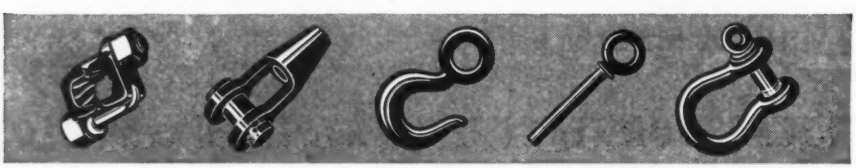
THE THOMAS LAUGHLIN CO., DEPT. 1, PORTLAND 6, MAINE.

Laughlin Safety Hook . . . "The Latch Locks The Load" . . . adds a big safety factor to every lift. Sturdy latch, stainless steel spring. For every industrial application.

Laughlin Replacement Swivel Hook Assembly with Safety Latch. Bolts on and off . . . no machining . . . no threading. For hoists, cranes, lashing operations. One-ton and half-ton sizes.

LAUGHLIN

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



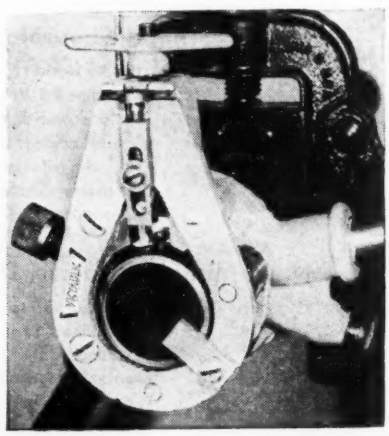
(For more information on new products, use coupon, p. 116.)

REFLECTING ROADSTUD — Effective highway safety device, self-wiping reflecting roadstud known as Catseye, has two reflecting lenses housed in resilient bridge-shaped rubber pad which clips into a box-shaped metal base with protecting ramps. It is paved into center of

highway where light from automobile headlamps is reflected, thus marking a definite lighted center line for traffic visible from 50 to 100 yd. in fog and 1,000 ft. on clear nights.—**Highway Safety Co., Inc., Frederick, Md.** *(201)*

RED CONCRETE COLOR—New brilliant red color for concrete floors, roads or blocks is announced. One bag of the color to one bag of portland cement gives solid brilliant color.—**Reardon Industries, 2,837 Stanton Ave., Walnut Hills, Cincinnati 6, Ohio.** *(232)*

PIPE GROOVER—Converts plain end pipe for use with Victaulic couplings and fittings. Known as the "Vic-Groover" new device may be operated either by hand or by power,

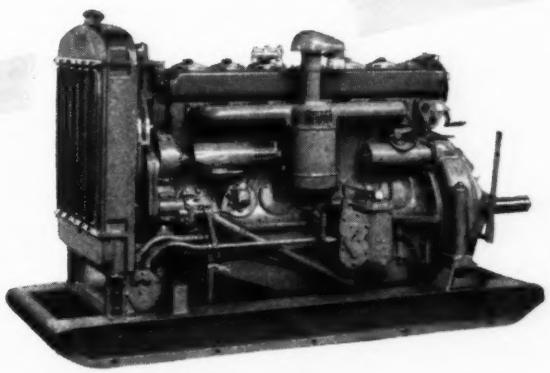


grooves pipe in half time and requires far less effort for threading. Machine is available in sizes to accommodate pipe sizes of from ¾ to 4 in.—**Victaulic Co. of America, 30 Rockefeller Plaza, New York 20, N. Y.** *(186)*

7 questions to ask a diesel engine salesman!

1. Is it a "true" diesel?
2. Does it have unit fuel injection?
3. Does it have four valves per cylinder?
4. Does it have dual overhead camshafts?
5. Are the camshafts driven from the flywheel end?
6. Does it have an integral hydraulic servo type governor?
7. Is the cylinder block symmetrical?

Only the Murphy Salesman can answer "Yes" to ALL of these questions. Ask him for a copy of the booklet "7 questions"—it is an illustrated discussion of these superior design features—or write direct, MURPHY DIESEL COMPANY, 5339 West Burnham Street, Milwaukee 14, Wisconsin.



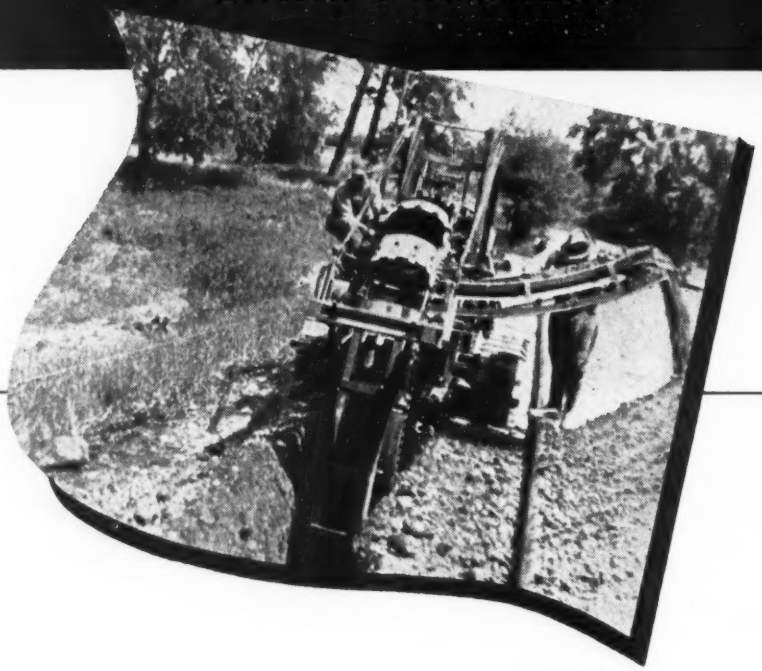
Murphy Heavy Duty Diesel Engines and Power Units, 90 to 215 H. P. Generator Sets, 60 to 115 K. W., A. C. or D. C.

MURPHY DIESEL

LOWEST ULTIMATE POWER COST

CLEVELANDS

ALWAYS *"Tops"* IN TRENCHING MACHINE PROGRESS



Have exactly what you want and need for dependable . . . economical peak performance in all soils and terrain

When you buy a trencher you have certain definite requirements in mind.

Your trencher must have the *flexibility* to meet the various requirements for digging long lines or short lines. It must have the dependable *stamina* to stand the stresses and strains of the toughest going. Certainly it should be designed, engineered and constructed to assure *minimum maintenance* and quick, *easy field repairs* when necessary. It must have the *speed and power* you want to enable you to keep up or ahead of the other gangs and set a pace that will meet and beat schedules. And of course for the sake of economy of operation you will demand *low fuel costs.*

All of the characteristics necessary to deliver this type of performance are built into today's CLEVELANDS. They are the result of a sound basic design and more than 25 years of improvement through close customer contacts.

TRADE MARK

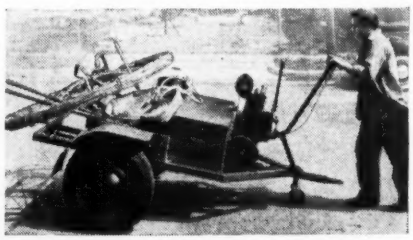
THE CLEVELAND TRENCHER CO.
20100 ST. CLAIR AVENUE • CLEVELAND 17, OHIO

WHEELED TRACTOR—Small rubber-tired tractor with bulldozer blade for miscellaneous construction work is of welded steel with 7½-hp. engine, weighs 885 lb., has wheelbase of 40 in., has automobile-like operation in steering and gearshift lever, can easily be backed into corners and is

claimed to operate all day on 2 gal. of gasoline. Friction clutch of power takeoff automatically disengages when engine speed drops below certain number of revolutions.—**National Iron Works, San Diego, Calif., for Lincoln Tractor Co., Arcadia, Calif.** *(213)*

EXTERIOR PAINT—Exterior paint which manufacturer says is non-inflammable, fire-resistant, repellent to marine insect life, termites and dry rot and capable of being applied over moist surfaces has fish oil base and special solvent. Penetrating ability makes it especially suitable for sealcoating concrete block and other surfaces of high porosity.—**Nu-Oil Paint Co., 2322 Newton St., San Diego, Calif.** *(212)*

SEWER-CLEANING TRAILER—Carry-all trailer for sewer cleaning work—ready to go on a moment's notice—carries entire "Flexible" rodding outfit; pipe guide, power drive, rod reel, hose, small tools and other necessary incidentals. Trailer has



pneumatic tires, large tool box with lock clasp, open box for bulky equipment, carrier underneath for 1½-in. pipe guide, and removable caster wheel for pushing about job.—**Flexible Sewer-Rod Equipment Co., 9056 Venice Blvd., Los Angeles, Calif.** *(226)*

INSULATING PLASTER — Plastic mineral cork makes insulating plaster for interior application in industrial buildings, homes, and public buildings. Light density, fire resisting, granular material, when mixed with directed quantity of water, forms smooth plastic mass. Troweled on any clean, rigid interior wall or ceiling surface in any desired thickness, it will set to form a durable insulating blanket which also has sound-absorbing properties.—**Building Materials, Inc., 208 W. Las Animas, Colorado Springs, Colo.** *(227)*

WAGON DRILL—Lightweight wagon drill, or Wagonjack, combines the drilling stability of wagon drill with portability of jackhammer. Rig mounts J-50 Jackhamer or DA-30 drifter, and has air-driven chain feed. Machine can be moved, set up

and operated by one man. Adjustable mounting permits drilling holes at any angle from horizontal to vertical. Will drill more feet of hole per cu.ft. of air consumed than hand-held drill.—**Ingersoll-Rand, 11 Broadway, New York 4, N. Y.** *(208)*

LETTERING GUIDES — Made of transparent plastic in six sizes from ⅛ to ½ in. Include complete alphabet and numbers. Usable with either sharp pencil or ink. Undercut prevents ink smears when guide is moved from one character to another. Guides come in sets of six.—**C-Thru Ruler Co., 827 Windsor St., Hartford, Conn.** *(197)*

To Make MORE MONEY on Concrete Work

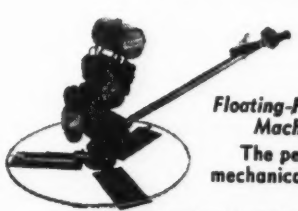
PUT A Whiteman Power Buggy ON THE JOB...

The Motorized Wheelbarrow of a Thousand Uses

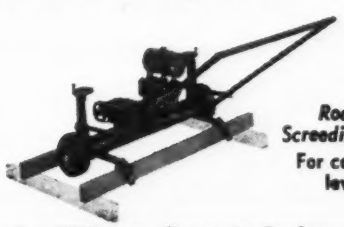
Hauls wet concrete, dirt, sand, bricks, tools . . . anything you can load in or on it. Ideal for pouring and upper story work. Goes through doorways. Weighs 750 lbs. . . . width 28" (or 36" with dual wheels). Bucket ht. 34". Speed: 2 to 15 m.p.h. forward or reverse. Soon pays for itself. Also available with flat stake body.

- Capacity: 2,000 lbs. or 12 cu. ft.
- 6 H.P. does the work of 6 men
- Turns in own radius . . . reverses
- Controlled dumping from driver's seat
- Lever dump for pouring

Plus these time-tested running mates:



Floating-Finishing Machine
The perfect mechanical trowel



Rodding (or Screeding) Machine
For compact and level slabs

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WHITEMAN MFG. CO.
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ON FIELD TESTS IN EVERY TYPE OF PROSPECTING AND STRIPPING THROUGHOUT THE WORLD.

The Parmanco Single Speed Transmission Drill is designed to meet the requirements of the general prospecting field where it is not necessary to drill in solid limestone. Special sliding frame permits drilling and pulling of augers without moving drill. New design of chuck eliminates all hand operation in raising power plant. Recommended for 50 to 60 feet with four and one-half inch equipment. Under favorable conditions it is being used to greater depths.

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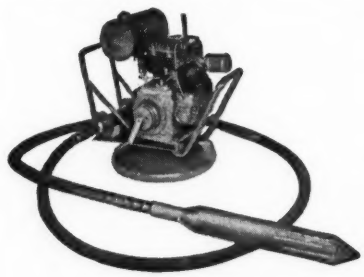
New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use

Protective Clothing—A 12-p. catalog section on industrial protective clothing. Pictures and describes both rubber and Koroseal (synthetic flexible material) garments. Included are Koroseal industrial raincoat, acid-proof apron, sleeve protectors, work suit, film industrial apron and heavy-duty industrial apron. Rubberized products include economy work coat, general purpose work coat, storm suit and others.—**The B. F. Goodrich Co., Akron, Ohio.** *(573)*

STEEL FRAMING—(15-p. folder) Shows applications of V section for steel framing of buildings. Use of jig welded wall panels, load bearing partitions and lightweight roof trusses is described. — **Macomber, Inc., Canton, Ohio** *(543)*



Concrete

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for Asphalt and Tar
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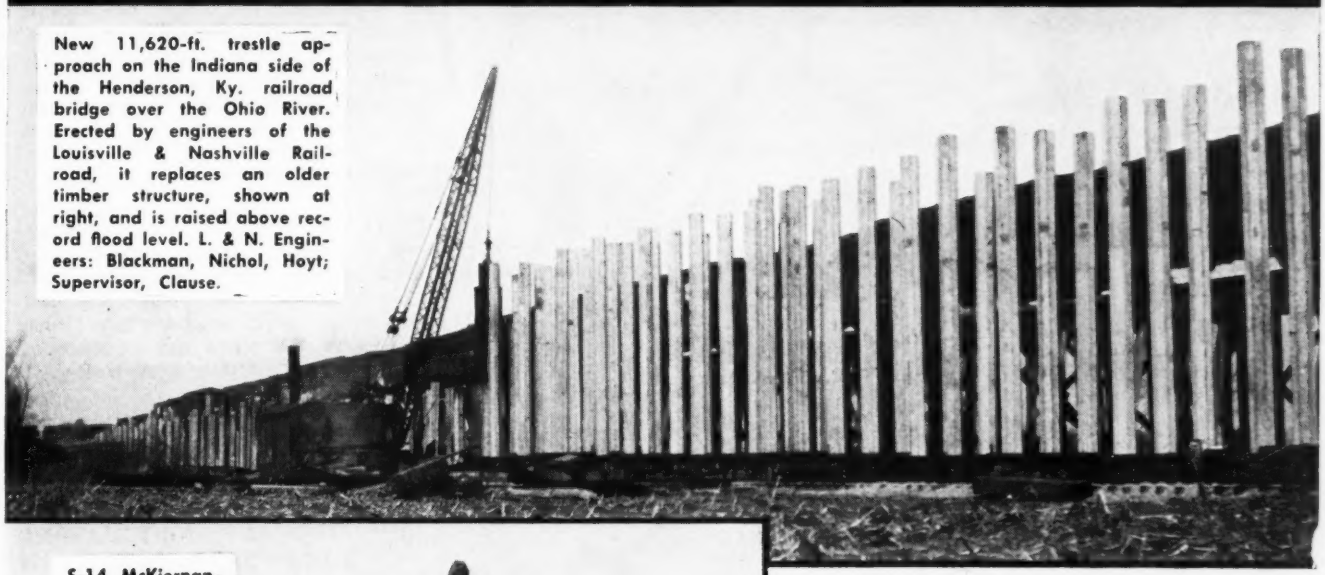
2225 PILES Driven Accurately



New 11,620-ft. trestle approach on the Indiana side of the Henderson, Ky. railroad bridge over the Ohio River. Erected by engineers of the Louisville & Nashville Railroad, it replaces an older timber structure, shown at right, and is raised above record flood level. L. & N. Engineers: Blackman, Nichol, Hoyt; Supervisor, Clause.

S-14 McKiernan-Terry Single-Acting Pile Hammer driving pre-cast reinforced concrete piling for the new L. & N. trestle.

Unusual length — over two miles — makes this single-track structure a noteworthy job of pile-driving. That the Louisville & Nashville engineers who handled the project chose a McKiernan-Terry hammer is one more tribute to McKiernan-Terry's half-century reputation for dependability and power in pile driving equipment.

McKiernan-Terry Double-Acting Pile Hammers are available in ten standard sizes; Single-Acting Hammers in five; Double-Acting Extractors in two.

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Full information on the complete McKiernan-Terry line of Hammers and Extractors is contained in Bulletins No. 55 and No. 57. Have these informative folders in your file for handy reference.

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THE DUFF-NORTON MANUFACTURING CO.

"The House that Jacks Built" PITTSBURGH 30, PA.

THE WORLD'S OLDEST AND LARGEST MANUFACTURER OF LIFTING JACKS

Power Shovels—Bulletin No 64-A, describing and illustrating Lima Type 604 shovel, crane and dragline. Gives details of construction and operating advantages, including application of precision air control. As a shovel, the Type 604 has a capacity of 1½ cu.yd.; as a crane, 30 tons, and as a dragline, variable. **—Lima Shovel and Crane Division, Lima-Hamilton Corp., Lima, Ohio.** *(572)*

PORTABLE CORDS AND CABLES—A 68-p. 2-color catalog gives complete information concerning portable cords and cables. Besides giving the usual weights and dimensions, the book describes the process of manufacture and also gives full data on splicing.—**Simplex Wire & Cable Co., 79 Sidney St., Cambridge 39, Mass.** *(599)*

SHOVEL, CRANE AND DRAGLINE—(24-p. bulletin) Describes Type 604 shovel, crane and dragline, with illustrations showing details of construction and operating advantages. —**Lima-Hamilton Corp., Lima, Ohio** *(541)*

CHEMICAL COATINGS — Bulletin describes chemical resistant coatings which are fortified with rubber to resist chemical conditions that are the major cause of rust in many types of industrial plants.—**Rust-Oleum, 2425 Oakton St., Evanston, Ill.** *(597)*

SQUIRREL-CAGE INDUCTION MOTORS—(16-p. bulletin) Describes line of type "CT" rolled shell, shaftless squirrel-cage induction motors for built-in drives, with details of electrical and mechanical features, mounting, ventilation and applications.—**Louis Allis Co., Milwaukee 7, Wis.** *(542)*

AERO-FILTER SYSTEM—A 16-p. bulletin describes a complete process for sewage and waste treatment, with blueprints and photographs. These basic advantages of this system are claimed: Excellent distribution; single-stage operation, producing a better plant effluent; 2-stage operations giving results comparable to activated sludge at half the cost; low construction and operating cost; uninterrupted and almost complete momentary bed coverage; and all returns made direct to the filter. A shorter bulletin describes a streamline sludge collector, giving full details. **Yeomans Brothers Co., 1433 North Dayton St., Chicago 22, Ill.** *(600)*

MANAGEMENT

Top corporation officials and men responsible for on-the-job supervision say that TEMPOTOOL *cuts fastening time in half* — saves plenty of money and greatly simplifies hundreds of fastening jobs.

LABOR

Workmen like TEMPOTOOL because it is easy to use and less fatiguing than old-fashioned drilling and bolt-setting methods.

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"TEMPOTOOL has solved many of our toughest fastening problems," say construction engineers. "It is *fast* — can be used in cramped spaces — and the holding power of the studs surpasses expectations.

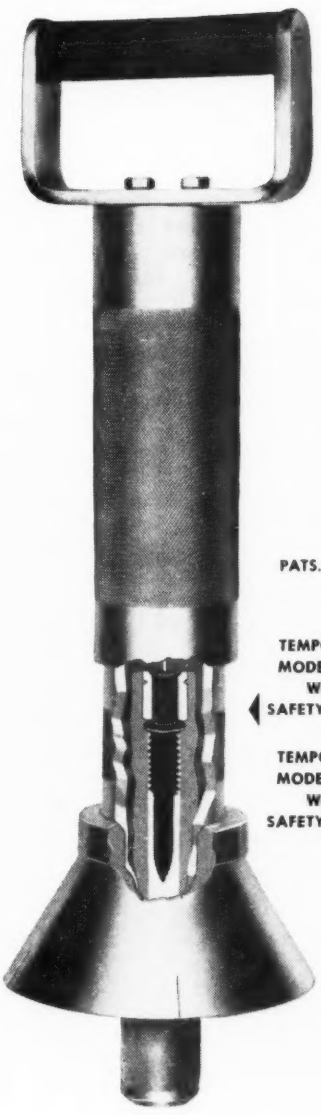
SAFETY ENGINEERS

The newest TEMPOTOOLS with automatic built-in safety features, and safety shield make TEMPOTOOL safe to use with normal safety precautions.

Member of the National Safety Council

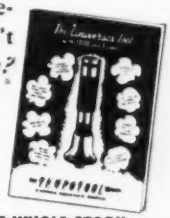
Everyone's getting into the Act...

WITH PRAISE FOR THE NEWEST TEMPOTOOLS



The story is getting around—*fast!* Construction and maintenance men from coast-to-coast are discovering a new, fast and greatly simplified method for attaching steel to steel, concrete or masonry. It's the TEMPOTOOL WAY —so entirely different and so much more efficient that it's hard to believe—at first.

Imagine *saving 50% in time alone* on fastening jobs—to say nothing of the cost and upkeep of expensive power equipment. It *can* be done—it's being done *every day!* Why don't you get the full story *now?*



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FOR THE WHOLE STORY SEND FOR THE NEW TEMPOTOOL BROCHURE

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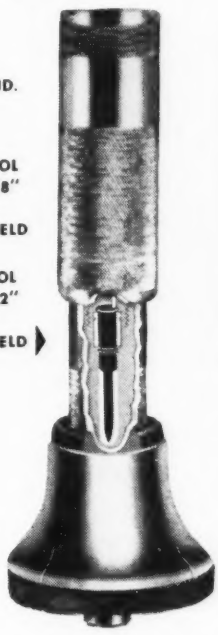
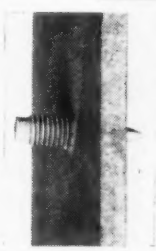
TEMPOTOOL MODEL "38" WITH SAFETY SHIELD

TEMPOTOOL MODEL "22" WITH SAFETY SHIELD



HERE'S HOW TEMPOTOOL STUDS PENETRATE AND HOLD!



A ½" USS threaded stud driven through a ½" hot rolled steel plate.

A TEMPOTOOL threaded stud withdrawn from a concrete wall. Note how concrete clings to the stud.

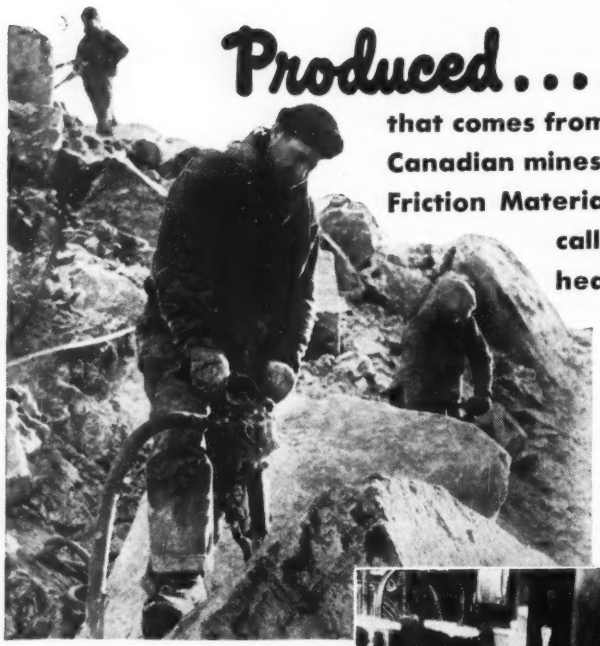
THE TEMPOTOOL PRINCIPLE OF OPERATION

TEMPOTOOL employs the power of an exploding powder charge to drive a "holding stud" into relatively tough materials like steel or concrete. The stud imbeds itself firmly in these materials and will withstand many hundreds of pounds of direct pull. The holding principle is similar to that of a nail—increased a thousandfold.

The cut-away illustration shows the powder charge and stud seated in the breech ready for operation.

FASTENS STEEL TO STEEL
FASTENS STEEL TO CONCRETE

like that!



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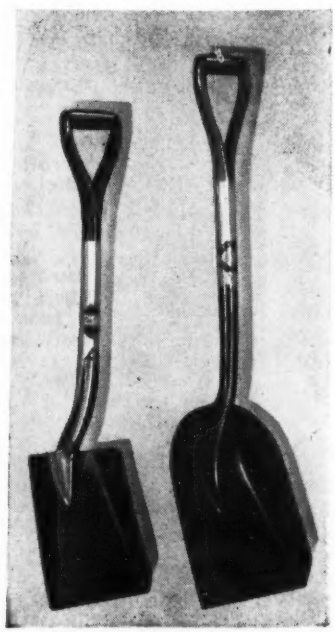
Batching Plants — Advantages and condensed specifications for Noble batching plants are described in four illustrated 4-p. folders. A separate folder is devoted to each of the four plant sizes: 20, 100, 150, and 350 tons. Plan drawings and photographs of field installations for each model.—**The Noble Co., 1860-7th St., Oakland 7, Calif.** *(582)*

Pipe Line Equipment—4-p. folder, punched for loose-leaf binding. Presents in easy reference form information and data on internal alignment clamps for pipe-line welding (both hand-operated and electric), expanders and portable power units.—**M. J. Crose Mfg. Co., Inc., Tulsa, Okla.** *(574)*

Truck Costs — Truck Operators Handbook tells how to reduce operating costs by proper selection and maintenance of tires. Featured is a discussion of factors that can be controlled to get most service out of any truck tire. Information is given on control of proper air pressures; overloading and improper load distribution, and a formula for analyzing loads.—**The B. F. Goodrich Co., Akron, Ohio.** *(575)*



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GUARANTEED SPLIT-PROOF

INGERSOLL SHOVELS
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Write for Catalog and Prices
INGERSOLL STEEL DIVISION
BORG-WARNER CORPORATION
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Plants: New Castle, Ind.; Chicago, Ill.; Kalamazoo, Mich.

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* *Precise "fingertip control" over proportioning, burning and grinding assures uniform high quality always.*

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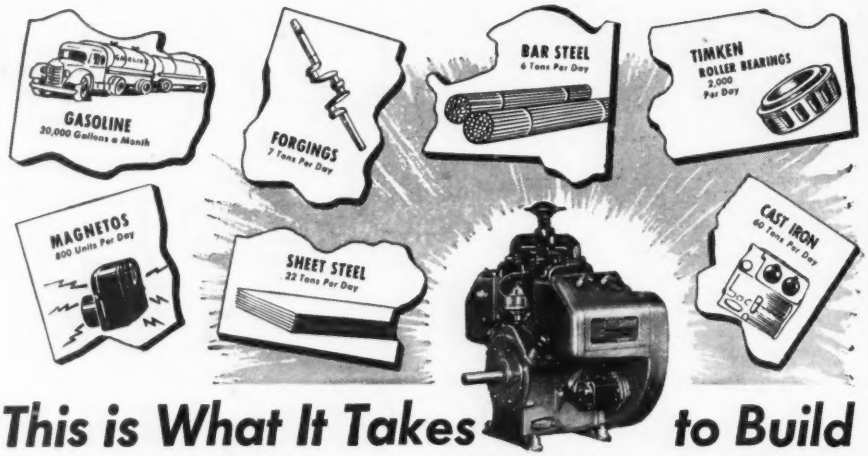
PORTLAND—HIGH EARLY STRENGTH—AIR ENTRAINING—MASONRY



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Trainloads of cast iron, bar steel, sheet steel and drop forgings; thousands of Timken roller bearings, magnetos, carburetors, fuel pumps and many other parts and materials . . . including 20,000 gallons of gasoline per month simply for factory test runs . . . that's what it takes to build Wisconsin Heavy-Duty Air-Cooled Engines!

But above all this *quantity* is the *quality* that is the final product . . . the Heavy-Duty Air-Cooled Wisconsin Engines that are serving Industry so dependably, in so many ways . . . as integral power units on a great variety of equipment, delivering "Most Hp. Hours" of on-the-job power service.

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Ready to ship to your job NOW — RELIANCE Construction Equipment offers you important improvements in complete Crushing, Screening, and Washing Plants. Look into the smooth operation and rugged construction of the RELIANCE LINE.

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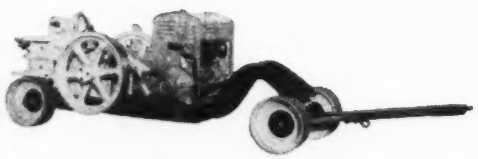

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(For copies of bulletins listed, use coupon, p. 116.)

Pump Bulletin—Bulletin, No. 47-8020, describes the Hydroplex pump, a split-case, multi-stage centrifugal pump for low capacity and high pressure pumping. The 8-p. two-colored booklet covers various views of pump, cross-section schematic, sub-assemblies, parts and dimensional orthographic drawings, and installation photographs. — **Byron Jackson Co., Pump Division, Los Angeles 54, Calif.** *(576)*

Bearings—260-p. ball-bearing catalog "K" contains 100 p. of engineering data. First section describes and illustrates many types of anti-friction bearings and contains interchangeability and conversion tables; detailed information on calculation of loads.—**Federal Bearings Co., Inc., Poughkeepsie, N. Y.** *(577)*

Welding Electrode Selection—Complete listing of all P&H electrodes in all types including mild steel, alloy steels, stainless steels, for welding cast iron and for hard surfacing, is now available. Includes the AWS or AISI classifications in accordance with NEMA color chart, physical properties and sizes available, and a description of the general characteristics of each electrode.—**Harnischfeger Corp., Milwaukee, Wis.** *(578)*

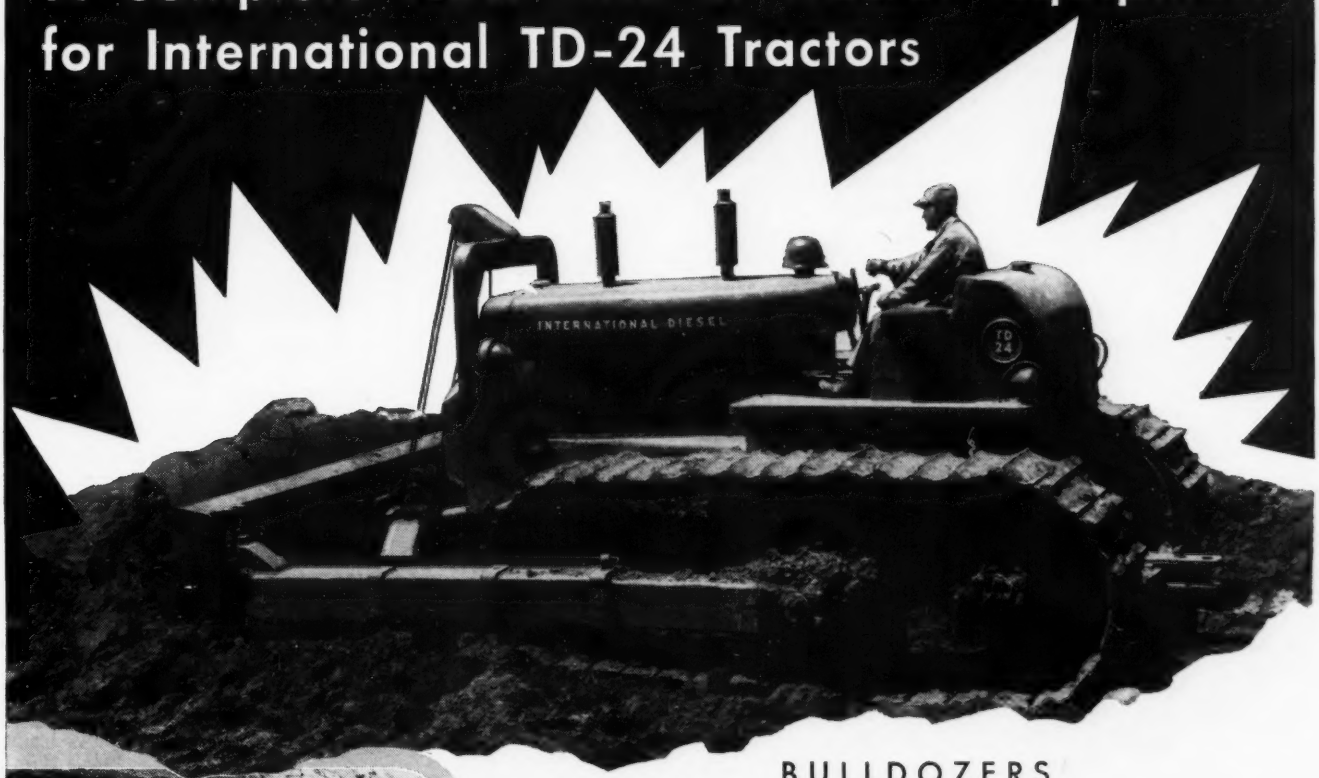
Cable Connections—12-p. Twecolog, describing complete line of welding electrode holders, ground clamps, cable connectors, machine terminals, cable splicers, lugs and carbon holders. Quantity price and parts information is included, and the bulletin shows new models.—**Tweco Products Co., Wichita 1, Kan.** *(579)*

Alloy Steels—A 24-p. booklet listing sizes, shapes, finishes and conditions of medium carbon, high carbon, case hardening, free machining, carbon-manganese machinery steel; heat-treated alloys and tool steels available for shipment. Booklet explains Ryerson certified alloy steel plan and contains tables of AISI and SAE standard steel compositions.—**Joseph T. Ryerson & Son, Inc., P. O. Box 8000-A, Chicago 80, Ill.** *(580)*

Suspended Ceiling — Catalog describes Nailock method of suspended ceiling construction which provides means of mechanical fastening for acoustical ceiling materials. Method is also used for fastening other nailable materials to steel, concrete and masonry. Descriptions accompanied by illustrations and details showing how channels are installed for various types of construction.—**Sanymetal Products Co., Inc., 1705 Urbana Road, Cleveland 12, Ohio** *(581)*

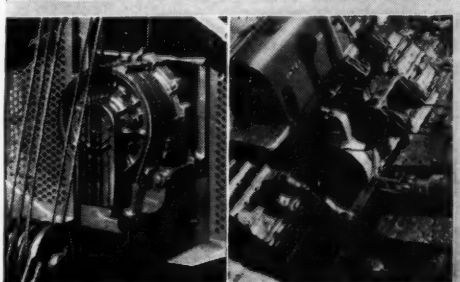
Bucyrus-Erie Announces . . .

A Complete New Line of Tractor Equipment for International TD-24 Tractors



Scientifically curved Bullgrader blade keeps dirt on the move.

The B-250 scraper has 22 cu. yds. struck capacity. Hinged apron provides greater opening.



WINCHES: Left: Front-mounted single drum winch. Right: Rear-mounted double drum winch.

BULLDOZERS

Sturdily built, thoroughly field-tested with the tractor. Highly wear-resistant alloy steel blade, reinforced for hard digging, curved to keep dirt rolling. Reversible cutting edge. Box-section push arms, with vertical diagonal braces strongly welded to blade. Simple, effective cable control. Combination of castings and weldments for strength and durability. Easy to apply to the tractor.

BULLGRADERS

Unusual visibility for accuracy, efficiency and safety of control. Tilting and angling adjustments for increased versatility. Manganese steel blade of high tensile strength. Reversible cutting edge. Replaceable cast steel corner shoes. Loads and thrusts placed to make most efficient use of tractor power. Cable controlled, with large sheaves placed well out of the way of dirt . . . simple cable reeving.

SCRAPERS

Four-wheel scrapers of 13.5 and 22 cubic yards struck measure capacity. Low center of gravity and wide-spread rear wheels furnish outstanding stability. Exclusive double-curve cutting edge . . . loads more uniformly with less horsepower. Positive rolling ejection takes less power . . . permits dumping and spreading in higher gear. Hinged, two-part apron on 22-yard scraper provides exceptionally wide opening for handling sticky or bulky materials. Can also be used as conventional single-piece apron . . . changeover requires only a few minutes. Main frame sides protected from wear by alloy steel side cutters bolted to side frames. Cutters are reversible for longer life.

Power Control Winches

Front-mounted single drum winch for use with bullgrader or bulldozer blade. Rear-mounted double drum winch for blade and scraper combinations. Planetary drive . . . constant live power instantly available. Low hand lever loads — conveniently located controls. Cool-running . . . interchangeable bands . . . single adjustment takes up all planetary main bearings. Band adjustments are easy to make, long lasting. Cushioned action is easy on cable, tractor and equipment.

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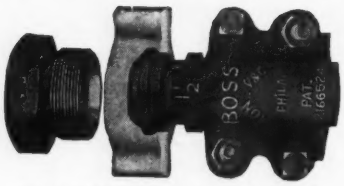
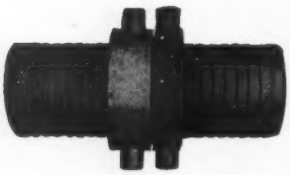


"G J-BOSS" Ground Joint Female Coupling, Style X-34

"BOSS" Male Coupling, Style MX-16

"BOSS" HOSE COUPLINGS

Correctly designed, carefully made couplings, with a reputation for safe, reliable service on high or low pressure steam, air, gas and fluid lines. Three styles—"G J-Boss" Style X-34, female, in ground joint construction; "BOSS" Style W-16, female, washer type; "BOSS" Male, Style MX-16. Furnished with powerful "Boss" Offset and Interlocking Clamps, and cadmium plated. Sizes ¾" to 6".



"KING" Shank Coupling

For Suction and Water Hose. A reliable coupling that is absolutely uniform in quality, threading and dimensions. Quickly connected and disconnected. Made in all malleable iron; malleable iron with brass nut; or all brass. Shanks have deep, clean corrugations. Sizes 1¼" to 8".

"KING" Combination Nipple

With "Cor-O-Zig" Corrugations. Fits straight end hose of same I.P.T. size; easier to attach because of smoothly rounded spiralled end; holds tighter under clamp pressure because zig-zag corrugations provide two-way gripping surface. Sizes ½" to 10".

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Strong, convenient, economical. Made of malleable iron, cadmium plated. Easily attached and can be used over and over again. Tightening provides evenly distributed all-'round pressure on hose. Double bolt has exclusive quadruple take-up. All sizes.

"AIR KING" Quick-Acting, Universal Hose Coupling

For convenient, low-cost service on drills, hammers, spades and other pneumatic tools. Same sizelocking heads for all I.P.T. and hose shank sizes within its range. Has patented safety locking arrangement. Bronze or malleable iron, cadmium plated.

"G J-BOSS" Ground Joint Air Hammer Coupling

Ground joint, WASHERLESS design and built for the real HEAVY DUTY hose jobs in construction, roadbuilding, quarrying, etc. Anchored to hose with tight-gripping "Boss" Interlocking Clamp. Compact and heavy types. Cadmium plated—rustproof. Also available in washer style.

"DIXON" Washer Type Air Hammer Coupling

Strong, safe, economical . . . for rock drilling and other air hose service. Furnished with oil treated leather washer and anchored to hose by efficient malleable iron "Dixon" Clamp. Compact and heavy types. Cadmium plated—rustproof. Also made in ground joint washerless design.

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PORTABLE GRAVEL PLANT—(Illustrated folder) Describes new TwinDual master, complete three-stage crushing, screening and loading plant in single unit. Specifications and flow chart are included.—**Universal Engineering Corp., Cedar Rapids, Iowa** *(564)*

METAL STORM WINDOW—(4-p. folder) This tells about a metal storm window that combines with steel casement and screen to form a complete window unit. It is made of formed steel, bonderized, quickly and easily installed, and fits snugly against the casement on the inside.—**Detroit Steel Products Co., 2250 East Grand Boulevard, Detroit 11, Mich.** *(598)*

EARTHMOVERS—(12-p. bulletin) Describes operation and construction features of Terra-Cobra high-speed self-propelled earthmovers. On-the-job photos are included.—**Woodridge Mfg. Co., Sunnyvale, Calif.** *(566)*

ARC WELDER—Handy size booklet gives full information on multi-range arc welders and electrodes.—**Hobart Brothers Co., Troy, Ohio** *(595)*

AGAINST POWER FAILURE!

FAIRBANKS-MORSE GENERATING PLANTS

When so much depends upon continuous power and light service, why chance failure? Install a Fairbanks-Morse generating plant! These performance-proved units will provide dependable service even under maximum power demand over a long period. A.C. and D.C. types; remote and automatic starting. Capacities from 350 to 35,000 watts. Send today for complete information. Fairbanks, Morse & Co., Chicago 5, Illinois.

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A name worth remembering

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It's good steel to work with— *thanks to* CONTROLLED HARDENABILITY

The average blacksmith doesn't give a thought to Controlled Hardenability.* He's interested in how the drill steel makes up. He wants easy forging, a wide quenching range, a smooth center hole . . . above all, a steel that's uniform from bar to bar.

But whether the blacksmith knows it or not, Controlled Hardenability is one of the big reasons why Bethlehem Hollow is all a drill steel should be. The skillful blending of ingredients in the melting furnace is the first important phase in exercising close control of hardenability and other physical properties of the steel. The production technique that follows is based at every stage on producing steel that is uniform in behavior—tough, fatigue-resisting drill steel.

Every pound of Bethlehem Hollow is made to the same, undeviating quality. Whether you're using detachables or forged-on bits, you can depend on it for extra footage and lower costs.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation

Export Distributor: Bethlehem Steel Export Corporation

★ BETHLEHEM STEEL ★

**A technique for controlling the ability of steel to be hardened "in depth."*

BETHLEHEM HOLLOW DRILL STEEL

100% Self-Contained

THAT'S SYNTRON

Gasoline Hammer

PAVING BREAKERS

Will Save You Money and time

Busting
Cutting
Digging
Driving
Tamping

Write for illustrated folder.

SYNTRON CO.
500 LEXINGTON, HOMER CITY, PA.

PROTECTING METAL SURFACES—(12-p. booklet) Describes a specialized protective coating material used on both new or uncoated metal structures and over previously coated surfaces. This coating is said to provide a tough but pliable and elastic weather-resistant, water repellent material that keeps out vapor, moisture, acid and alkali gases and fumes.—**The Arco Co., 7301 Bessemer Ave., Cleveland 4, Ohio, or 745 E. 59th St., Los Angeles, Calif.** *(592)*

STREET CLEANER—An illustrated folder tells about a new machine that sweeps, sprinkles or flushes streets, cleans sewers, sprays trees and fights fires—a low cost multi-purpose unit designed for city and town use.—**Rosco Manufacturing Co., 3118 Snelling Ave., Minneapolis 6, Minn.** *(585)*

SAFETY TREADS—12-p. catalog on safety treads for stairs and ramps in public and institutional buildings. Materials are white alloy and yellow brass, cast-iron and aluminum. Other products described are elevator sills, thresholds, window sills, curb bars and trench covers.—**Wooster Products, Inc., Wooster, Ohio.** *(596)*

WELDING RODS CATALOG—(24-p. brochure) Devoted to gas welding wire and its use. Good index. Numerous application photos.—**Page Steel & Wire Division, American Chain & Cable Co., Inc., Bridgeport 2, Conn.** *(584)*

WIRE ROPE SLING—Bulletin tells about a flat-laced wire rope sling made of six parts of wire laced together to form a flat, strong and flexible lifting device.—**A. Leschen & Sons Rope Co., 5909 Kennerly Ave., St. Louis 12, Mo.** *(593)*

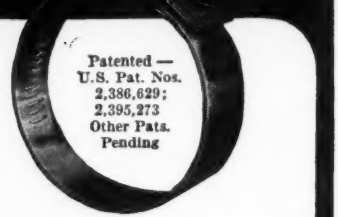
INTEGRAL SEAT VALVES—A new catalog section describes forged steel chrome-molybdenum valves for service at 1,500 and 2,500 lb. at 1,000 F. It contains details of construction, dimensional and design data, and material specifications.—**Edward Valves, Inc., subsidiary of Rockwell Mfg. Co., East Chicago, Ind.** *(589)*

NEW MOTOR TRUCKS—A large pocket of sheets and photos contains all the news of the new 1948 line of Ford motor trucks, the first new postwar products of the company. These trucks are notable for the large range of models and capacities and for many engineered changes.—**Ford Motor Co., Dearborn, Mich.** *(590)*

WHY "Aero-Seal"

T. M. Reg. U. S. Pat. Off.

WORM DRIVE HOSE CLAMPS WILL SAVE YOU MONEY



RUGGED!

Sturdily built. Stainless steel or carbon spring steel. Rust resistant. Mechanically interlocked saddle. Worm gear drive. No loose parts. Vibration-proof. Unaffected by high or low temperatures and pressures. Uniform "squeeze" on hose. Greater band strength.

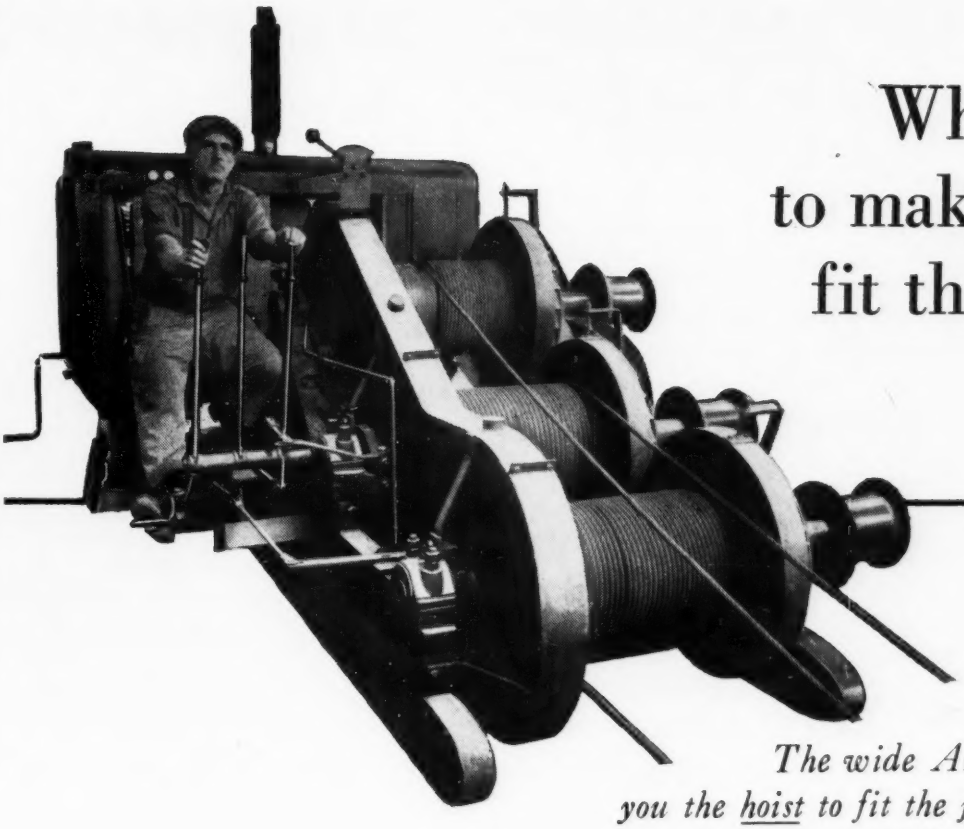
FASTER TO INSTALL!

Save time. Easily installed. No need to remove hose. Self-locking. Will not collapse thin wall hose.

REDUCE MAINTENANCE COSTS!

They "stay put". Leak-proof. Extra long take-up. Reduce inventory requirements. Keep equipment on the job. Use them for all air, fuel and coolant lines on trucks, tractors, pumps, mixers, compressors, power shovels, motor graders, etc. Write for FREE SAMPLE. You'll like "Aero-Seal".

BREEZE CORPORATIONS, INC.
Aircraft Standard Parts Co. Div.
41 South Sixth Street
Newark 7 • New Jersey



Why try to make the job fit the hoist?

The wide American line gives you the hoist to fit the job . . . models ranging from 500 to 40,000 pounds single line pull

During 60 years of hoist building, "AMERICAN HOIST" has constantly expanded its line.

Today we can offer you any desired degree of power, from 500 lbs. to 40,000 lbs. single line pull. From the small roofer's hoists on up to the great Model 400, this line gives you precisely what you need for any job, any set up, any budget. On most sizes, you have your choice of three kinds of power—gasoline, electric or diesel. Steam models are also available.

For the great majority of construction jobs, you'll want one of the five AMERICAN General Purpose Hoists. Capacities are from 2,500 to 10,000 lbs. single line pull. They're light, rugged and speedy . . . easy to use; easy to service.

. . . and DERRICKS to match!

When it's a hoist-and-derrick job, you should have matched units. The "AMERICAN" line meets all derrick needs: Stiffleg, Guy, Gallows Frame, Steel Erector, Barge and special types . . . the most dependable strength you can buy.

Ask your "AMERICAN" distributor, or write us direct, for helpful information on any job.

American Hoist
and DERRICK COMPANY

St. Paul 1, Minnesota

Plant No. 2. SO. KEARNY, N.J.

Sales Offices. NEW YORK • NEW ORLEANS
CHICAGO • PITTSBURGH • SAN FRANCISCO

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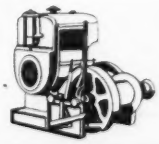
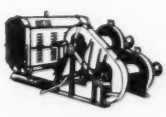
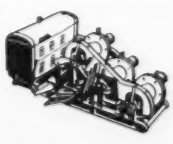
DOZENS OF MODELS TO CHOOSE FROM

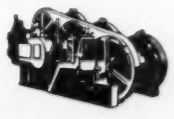
Roofer's Hoist
500 lbs. S.L.P.

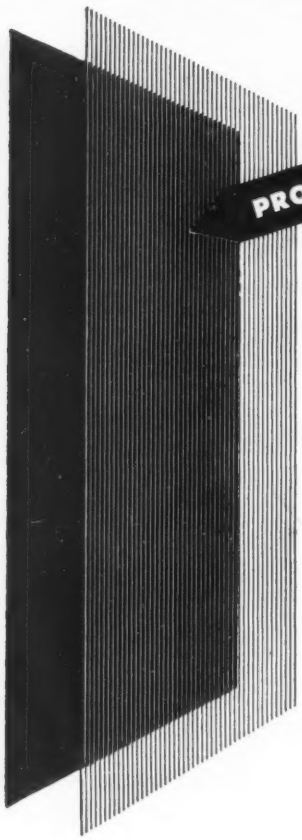

Single Drum Hoist
2,500 lbs. S.L.P.


Double Drum Hoist
7,500 lbs. S.L.P.


Three Drum Hoist
10,000 lbs. S.L.P.

Four Drum Steam Hoist
25,000 lbs. S.L.P.


Three Drum Hoist
40,000 lbs. S.L.P.



PROTECT AND SAVE CONCRETE FORMS...

coat them with **PLASTIGLAZE**

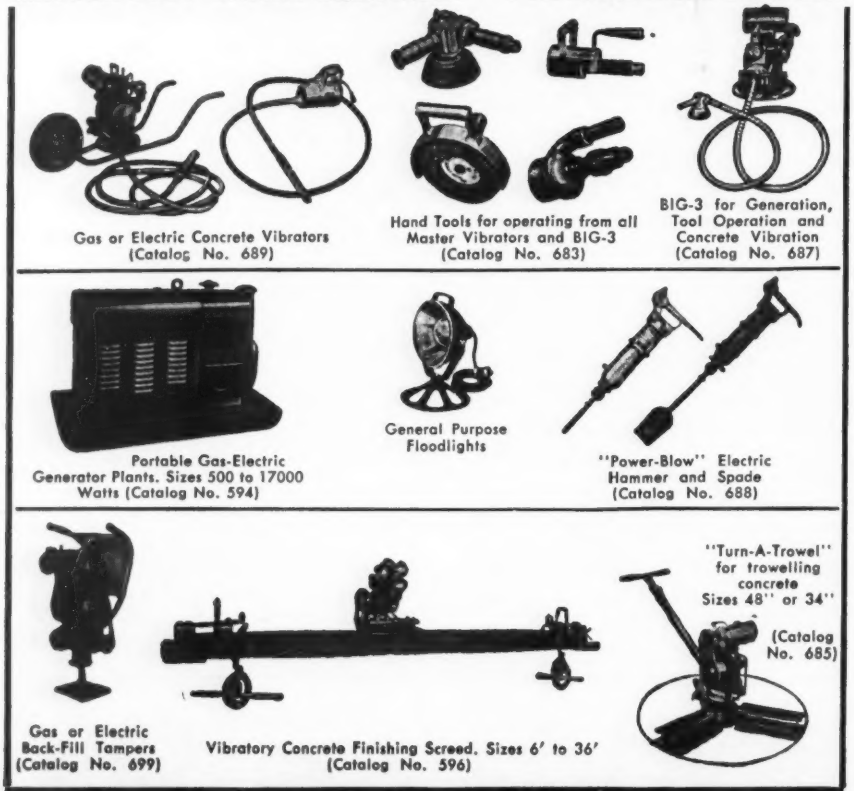
Plastiglaze is a clear, fast air-dry liquid plastic of the polyester resin family. It can be brushed, sprayed, or dipped. Plastiglaze penetrates and seals plywood or common lumber. It forms a hard high gloss finish, resistant to water, alkalis and mild acids.

Plastiglaze coated forms may be used over and over again without deterioration. Plastiglaze has been used successfully for coating wood forms in bridge, home, and other concrete construction.
For more information, write:

CALRESIN CORPORATION
CULVER CITY, CALIFORNIA

PLASTITOOL • PLASTIFLEX • PLASTIFORM • PLASTIGLAZE

MASTER COST-SAVING EQUIPMENT—FOR IMMEDIATE DELIVERY



Gas or Electric Concrete Vibrators (Catalog No. 689)

Hand Tools for operating from all Master Vibrators and BIG-3 (Catalog No. 683)

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Portable Gas-Electric Generator Plants. Sizes 500 to 17000 Watts (Catalog No. 594)

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"Power-Blow" Electric Hammer and Spade (Catalog No. 688)

Gas or Electric Back-Fill Tampers (Catalog No. 699)

Vibratory Concrete Finishing Screed. Sizes 6' to 36' (Catalog No. 596)

"Turn-A-Trowel" for trowelling concrete Sizes 48" or 34" (Catalog No. 685)

Send for illustrated catalog on any item to
MASTER VIBRATOR COMPANY
DAYTON 1, OHIO

(For copies of bulletins listed, use coupon, p. 116.)

AVIATION LIGHTING—A large indexed catalog covers beacons, marker lights, control desk and panels, floodlights, weather equipment, accessories and parts, etc. Of value to airport builders.—**Crouse-Hinds Co., Syracuse, N. Y.** *(594)*

SERVICE ELEVATOR — Bulletin describes fast inter-floor transportation with a service elevator for a variety of industries. Can be used in any building up to 200 ft. high. Takes less space than stairway or regular elevator. — **Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.** *(588)*

FOR CONCRETE FLOORS—This booklet develops the proposition that aggregates must be carefully selected and prepared and that emery aggregate produces strong, hard, long wearing concrete because it is a natural mined material, scientifically crushed, sized, cleaned and graded.—**Walter Maguire Co., Inc., 330 West 42nd St., New York 18, N. Y.** *(587)*

PAINTING GUIDE—(40-p. book) This book will help to insure the proper use of paint and related materials. On a double-page spread is given the method of painting walls, furniture, woodwork, floors, etc. It is thoroughly and uniquely indexed. —**Devoe & Raynolds Co., Inc., 44th St. & 1st Ave., New York 17, N. Y.** *(586)*

JAW CRUSHERS—(12-p. catalog) This publication develops the theme of lower cost per ton crushed and contains information on weights, dimensions and capacities.—**Lippmann Engineering Works, 4603 W. Mitchell St., Milwaukee 14, Wis.** *(591)*

FIRE BRICK AND REFRACTORIES —(32-p. catalog) Includes complete tables for all sizes of refractory bricks so that brick estimates for any building relining, repairing or rebuilding job can be rapidly figured. Castable refractories, bonding mortars, fire brick, silica brick, patching mortars and acid-proof cements are thoroughly covered.—**Robinson Clay Product Co., Second National Bldg., Akron 9, Ohio** *(557)*

ROTARY HOLE SAWS—(Illustrated brochure) Describes uses of single and multiple-cut rotary hole saws for cutting in sheet metals, wood, plastics, wallboard, plywood, fiber and other materials.—**Misener Mfg. Co., Inc., 202-8 Walton St., Syracuse, N. Y.** *(544)*

EQUIPMENT MEN

and Their Companies

Current developments among manufacturers relating to expansion of services, shifts in personnel, and other changes, include the following:

HOME OFFICE CHANGES—The **DeLaval Steam Turbine Co.,** Trenton, N. J., announces that **J. P. Stewart** has been made manager of the commercial and marine sales divisions, succeeding H. V. Petersen, retired. **H. G. Bauer** has been made executive engineer . . . **Harry Green** and **Carl Senn** are consultants to the **Falk Corp.,** Milwaukee, Wis., on machine shop operations and methods engineering, respectively . . . **J. Robert Pauline** is works manager for the **Kellogg division** of the **American Brake Shoe Co.,** N. Y. City and **J. A. Fellows,** assistant chief metallurgist at the Mahwah, N. J. research center . . . **R. D. Wood** is chairman of the board of the **Mississippi Valley Structural Steel Co.,** Chicago, replacing **W. M. Wood,** retired.

The **Dravo Corporation** of Pittsburgh, Pa., has appointed **William H. Collins** as director of advertising . . . **Frank L. Estep,** electrical and mechanical engineer, has become associated with the **Barium Steel Corp.** . . . **Lucien W. Mueller** has been elected chairman of the board of directors of the **Mueller Co.** . . . **William M. Lehmkuhl** has been appointed assistant vice-president of the **Masonite Corp.** . . . **Carl F. Clausen** has been named manager of the manufacturing research section for the **Portland Cement Association** . . . **R. E. Keidel** has joined the advertising department of the **Euclid Road Machinery Co.** as assistant advertising manager . . . **Thomas Oxnard** and **John Morel** have been elected directors of the **Southern States Iron Roofing Co.** of Savannah, Ga. . . . **Walter C. Robertson** has been elected vice-president in charge of export for the **Gar Wood Industries, Inc.** . . . **Elmer W. Noxon** has assumed the presidency of the **Dixie Machinery Mfg. Co.** of St. Louis . . . **W. E. Day** is now director of research for **Mack Trucks** . . . **Calvert Carey** has been elected president and **Fred Dunning** executive vice-president of the **Yale & Towne Mfg. Co.** . . . **E. A. Longenecker** has been elected president of the **LeRoi Co.,** Milwaukee, Wis.

Walter S. Carpenter, Jr., who directed the affairs of **E. I. duPont de Nemours & Co.** for eight years, has resigned as president to become chairman of the board. . . . **Charles**

(Continued on page 162)

Lift 88% easier WITH SIMPLEX SCREW JACKS

GET FASTER, SAFER JACKING ON ALL CONSTRUCTION JOBS

Put Simplex Screw Jacks on your heavy-duty construction jacking jobs—see how you save in time and effort. These Screw Jacks employ a single chrome-moly ball, nested under the drop forged steel cap, that actually reduces friction 88%! The single ball won't flatten; cap can't slip...even under heaviest loads.

A flared base of tough, malleable iron gives extra stability and protection. The peephole in the base guards against over extension of the screw; insures safety. Colors indicate jack capacities; make selection easy on the job.

Available in 21 models with 4-Way Head—capacities from 10 to 24 tons. Also available in 10 models with Ratchet Type Head for close quarter operation — capacities 20 or 24 tons.

Simplex LEVER · SCREW · HYDRAULIC Jacks

TEMPLETON, KENLY & CO.

1008 South Central Avenue, Chicago 44, Illinois

To Help Your Pumps Operate at TOP EFFICIENCY

GOODALL "SSS" SUCTION HOSE

Sizes up to 6"

A Goodall "Standard of Quality" Product . . . built to get the most out of your pumps when water threatens to hold up the job and cut down your profit. Won't kink, buckle or collapse. Tough red waterproof cover withstands severest surface wear and provides full protection against internal damage. Smooth bore rubber tube is highly resistant to cutting action of sand and gravel. Identified by the "SSS" label and brown spiral stripe.

Contact Our Nearest Branch for Complete Details and Prices.

GOODALL RUBBER CO., INC.

THE GOODALL-WHITEHEAD COMPANIES

Philadelphia • Trenton • New York • Boston • Pittsburgh • Chicago • St. Paul • Los Angeles San Francisco • Seattle • Salt Lake City • Houston • Factory: Trenton, N. J. • Est. 1870

(Continued from page 161)

S. Munson, formerly president of **Air Reduction Co., Inc.,** has been elected chairman of the executive committee. He is succeeded by **John A. Hill** who becomes the fifth president of the company. . . . **William C. Kieley,** formerly vice-president, was elected chairman of the finance committee. **C. E. Adams** remains chairman of the board of directors.

SALES STAFF CHANGES—Boyd Allen is staff manager for customer relations of the **Johns-Manville** Building Products division, N.Y. City . . . **H. Merrill Bowman** has been made assistant divisional sales manager for power transmission equipment, **Link-Belt Co.,** Chicago, and **E. S. Bogart** has been appointed district sales manager at Baltimore . . . **Scott D. Baumer** is manager of the technical sales division of the **Air Reduction Sales Co.,** N.Y. City, and **E. H. Roper** is assistant manager . . . **E. George Hartmann** has become general sales manager of the **John A. Roebling's Sons Co.,** Trenton, N. J. . . . **Universal Atlas Cement Co.** has appointed **Thomas E. Bertelsen** sales manager for the Indiana-Michigan district . . . **George R. Sommers** has been chosen director of sales for all product divisions of **Sylvania Electric**

(Continued on page 164)

GRIFFIN

GRIFFIN

WELLPOINT SYSTEMS

JETTING PUMPS

Distributors

GRIFFIN ENGINEERING CORP.
2016 E. Adams St.
JACKSONVILLE, FLA.

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25-mile model highway comes up to expectations

After 12 years of heavy motor freight and tourist traffic, this resilient Texaco Asphalt pavement remains smooth, easy-riding.

Twelve years ago, the Texas State Highway Department paved 25 miles of U. S. 87 near San Antonio. This was regarded as a model job, built under close laboratory control by the most modern mechanical methods. Traffic has been heavy, including truckloads of wool and mohair bound for Gulf ports and fruits and vegetables going north, plus the annual flow of tourists to and from San Antonio.

A noteworthy feature of the project was the use of plant-mixed Texaco Asphalt construction for the base, as well as for the wearing surface. This gives the highway 4½ inches of resilient, rugged Texaco, supported by three inches of crushed limestone and 9 inches of caliche. At the end of the first twelve years of hard service, Texas' model highway is measuring up to all expectations, judging by its present excellent condition and the low upkeep cost to date.

Texaco provides the street, highway and airport builder with a complete range of Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils. To help you choose the product and type of asphalt construction best suited to your needs, Texaco representatives who are Asphalt specialists are at your service. You can reach one of them at our nearest office.

THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Philadelphia 2 Richmond 19

TEXACO

TEXACO ASPHALT

New!

THE CAP THAT DOES NOT FORGET TO CLOSE
Completely automatic—the "RAINCAP" is counterbalanced to open when the tractor starts and close when it stops. Rust proof — made of cast aluminum — can be installed in two minutes. F.O.B. Waterloo, Iowa. Write Dept. CM.

- Immediate delivery
- Liberal Dealer Discount.

STOPS MOISTURE FROM FALLING INTO TRACTOR EXHAUST . . Just slip the "RAINCAP" over the open end of your tractor exhaust, and you eliminate forever the danger of moisture falling into the exhaust, injuring your tractor.

No.	O.D. Exhaust	Price
1	2⅛"	$1.90
2	2⅜"	1.90
3	2¾"	1.90
5	1⅞"	1.90
55	2"	1.90
6	1½"	1.90
66	1⅝"	1.90
7	2½"	1.90
8	3"	2.50
9	3⅛"	2.50
10	3¼"	2.50
11	3½"	2.75
12	4"	3.00

WATERLOO FOUNDRY CO., WATERLOO, IOWA

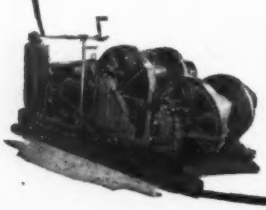
RENT A THOMAS HOIST
For Your Building Jobs
Direct From the Manufacturer

For 70 years, Thomas-built hoists have been designed for dependable, economical service.

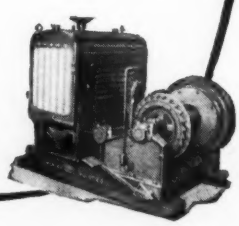
NOW AVAILABLE — IN STOCK

The Thomas patented "Band Friction" grips positively, releases easily—ELIMINATES OPERATOR FATIGUE. The Thomas patented "Back-Up" brake requires no power, sets and releases automatically. QUICKLY INTERCHANGEABLE PARTS, and PROMPT, DEPENDABLE SERVICE means Thomas Hoists Keep the Job Going. One, two or three drum hoists up to 100 H.P. gasoline or electric powered.

Write NOW for NEW FOLDER No. 101 showing in detail the trips per hour normally obtainable with the various types of Thomas Hoists that are engineered to fit a particular job.



THOMAS HOIST CO.
22 S. HOYNE AVENUE
PHONE SEELEY 0303
CHICAGO 12, ILL.



(Continued from page 162)

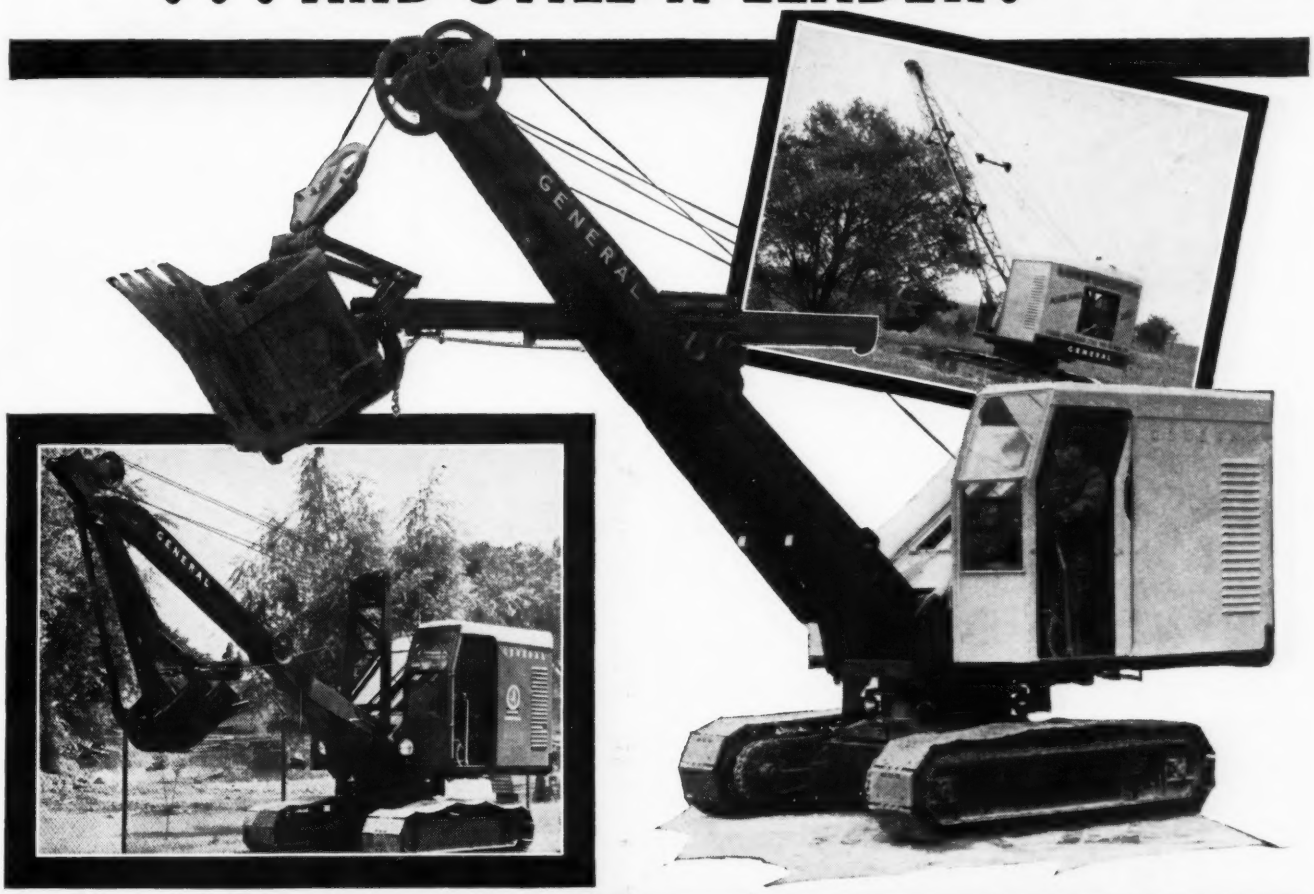
Products, Inc., on the Pacific Coast . . . **E. E. Witt** has been appointed as special representative in construction and industrial sales for **Caterpillar Tractor Co.** in the Western division . . . **Murray D. Shaffer** has been appointed director of sales and research consultant for the **Buffalo Springfield Roller Co.,** Springfield, Ohio . . . **Frank A. Sweeney** has been made vice-president in charge of sales of the **National Portland Cement Co.,** Philadelphia, Pa.

DEALER APPOINTMENTS — Monarch Electric Co., LaSalle, Ill., is distributor for line of **Hewitt Rubber** division's industrial hose, conveyor and transmission belting and packing . . . New distributors for **All-state Welding Alloys Co., Inc.,** White Plains, N. Y., are **Lud's Auto Parts,** Merced, Calif.; **Pompton Welding Works,** Pompton Lakes, N. J.; **Paul P. Lang,** Honey Brook, Pa.; **Knoxville Welding Supply Co.,** Knoxville, Tenn.; and **Harris Calorific Equipment Co.,** Wheeling, W. Va. . . . **Worthington Pump & Machinery Corp.,** Harrison, N. J., has appointed **Henry H. Ritchotte** as sales manager in Canada for its construction equipment and mining products . . . **Potts-Farrington Co.,** Philadelphia, Pa., will handle the **Richkraft** building papers . . . **Chester Rice and Associates,** Cleveland, Ohio, will represent **Plastell Products Co.,** Washington, Pa., in several Ohio markets . . . **Edward Valves, Inc.,** has appointed **Chas. H. Tate Co.** as its Cleveland, Ohio, area representative . . . **Ralph E. Carter Co.,** Hackensack, N. J., has appointed **Clark-Wilcox Co.** of Boston, Mass., exclusive agent for its pumps in Massachusetts, Maine and New Hampshire.

The Galigher Co., 545 W. 8th South St., Salt Lake City 4, Utah, is exclusive representative of Robins Conveyors division, **Hewitt-Robins Inc.** for Utah, Idaho, Montana, Nevada and Wyoming. . . . **Davies Equipment Co.,** Trackville, Pa., is the **Davey Compressor Co.** dealer for the Pennsylvania counties of Lackawanna, Wayne, Pike, Luzerne, Wyoming, Monroe, Carbon, Schuylkill, Columbia and Montour. . . . **J. T. Conners,** 851 Leader Building, Cleveland, Ohio, is northeastern Ohio agent for **Lima Shovel and Crane Division** of the **Lima-Hamilton Corp.** . . . **Cleveland Bros. Equipment Co., Inc.,** Harrisburg and Luzerne, Pa., will sell Caterpillar products in 32 counties of Central Pennsylvania. . . . All **Davey Compressor Co.** products will be handled in 41 Texas counties by the **Fry Equipment Co.,** 525 South 11th St., Abilene, Tex. . . . **K. G. Holdom** at 150 Broadway, New York City, has been appointed eastern representative for the gas processes division of **Girdler Corp.,** of

(Continued on page 166)

A PIONEER of Small Excavating Equipment . . . AND STILL A LEADER!



GENERAL SHOVELS, DRAGLINES, CRANES, ETC.

Diesel, Gas, and Electric Powered . . . Wheel and Crawler Mounted. ½ and ¾ Cu. Yds.

Generals have always been known for speed . . . for strength and power . . . for flexibility . . . for the ability to take punishment day after day and still give uninterrupted performance. Constant improvement of the product through new engineering developments, has added to that reputation.

A typical General achievement is the self-propelled one-man, one-engine crane, on rubber. Similarly, the new General crawler-mounted shovels, cranes and draglines, etc., are making an enviable record of out-performing all other types of equipment of comparable rating. Write today for the latest details.

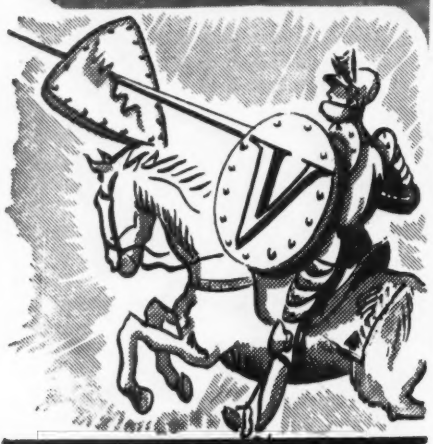
POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS

THE OSGOOD CO. O-G THE GENERAL CO. EXCAVATOR

MARION OHIO

DIESEL, GASOLINE OR ELECTRIC POWERED • ⅜ TO 2½ CU. YD. • CRAWLERS & MOBILCRANES

PENETRATING POWER



SUPER-VULCAN
OPEN TYPE
DIFFERENTIAL-ACTING
PILE HAMMERS
18C, 30C, 50C and 80C

• Brute force and speed backs every powerful Super-Vulcan blow to drive piles faster, easier, at less cost, with 25 to 35 per cent less steam per blow.

Rugged strength, simple design, positive action, durability and compactness are the basis for Super-Vulcan's efficiency, dependable performance and lasting service. The open type Super - Vulcan fits the same leads and uses the same accessories as the Vulcan Single-Acting Pile Hammer.

Find out about the super performance of Super - Vulcan — the pile hammer that delivers twice the usual number of blows per minute. Write today for full details.

•

Sizes
18C—30C—50C—80C
meet all needs

VULCAN IRON WORKS
Since 1852
331 North Bell Avenue
Chicago 12 ---Illinois

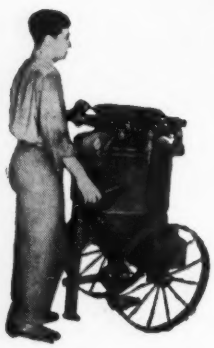
(Continued from page 164)

Louisville, Ky. . . . **J. C. Georg** of Syracuse, N. Y., has been appointed distributor for eastern N. Y. state outside of metropolitan N. Y. City for the Goodall earth-mover made by **Warner & Swasey Co.**, Cleveland, Ohio. . . . **J-W Materials, Inc.**, Napoleon, Ohio, will be distributor for **Dewey and Almy Chemical Co.'s** Darex AEA air entraining agent, manufactured at Cambridge, Mass., for the states of Ohio, Indiana, Kentucky, Tennessee, Alabama, Mississippi, Florida and the lower peninsula of Michigan.

PERSONALITIES—J. Thomas Arens has been appointed manager of the **U. S. Plywood Corp.'s** branch warehouse at Baltimore, Md. . . . **W. A. Roberts** and **W. C. Johnson,** executive vice-presidents of **Allis-Chalmers Mfg. Co.** have been elected directors . . . **H. M. Ridlon** has been made assistant director of commercial research for the **U.S. Steel Corp.** of Delaware . . . **James J. Newman,** vice-president of **B. F. Goodrich Co.** has been elected chairman of the National Inter-Industry Highway Safety Committee . . . **John P. Stevens, Jr.,** has been elected a director of **American Brake Shoe Co.** . . . **John Marrow, Jr.,** vice-president of purchasing and traffic, has retired after 45 years of service with the **Interna-**

(Continued on page 168)

PREHY GROUTERS—



WEBER SYSTEM

New indispensable Equipment for Contractors, Railroads, Mines and all public and private Construction Departments.

For

Plastic and Fluid Pressure Grouting, Pneumatic Concrete Construction, Railway Track and Soil Stabilization, Correction of Structural Deficiencies, Subsiding Foundations, Floors, Drypack Concrete and many other practical uses.

Write for complete information

THE PREHY CO.
INCORPORATED
420 Lexington Ave., New York 17, U.S.A.

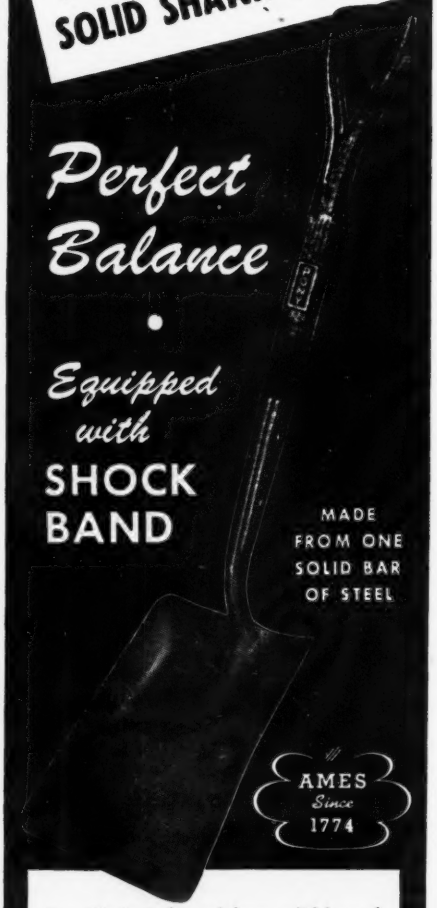
"AMES"
PONY
FEATHERWEIGHT
SOLID SHANK SHOVELS

Perfect Balance

•

Equipped with
SHOCK BAND

MADE FROM ONE SOLID BAR OF STEEL



AMES Since 1774

1 — Blade is forged from solid bar of steel.

2 — "AMES" shock band protects and strengthens handle.

3 — High bend for perfect balance.

4 — Engineered to insure user completely satisfactory results.

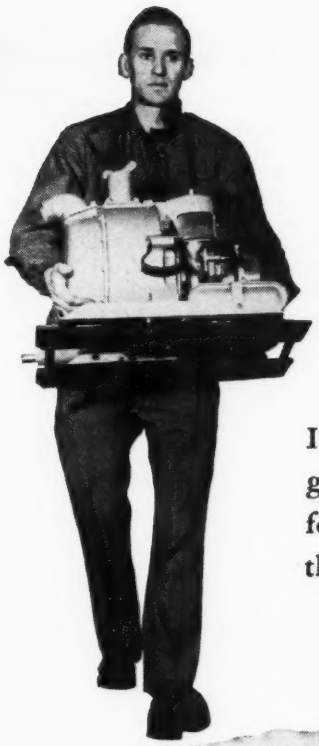
Ask Your Jobber

•

AMES PRODUCTS
SHOVELS FORKS
SPADES HOES
SCOOPS RAKES
POST HOLE DIGGERS
AGRICULTURAL HANDLES

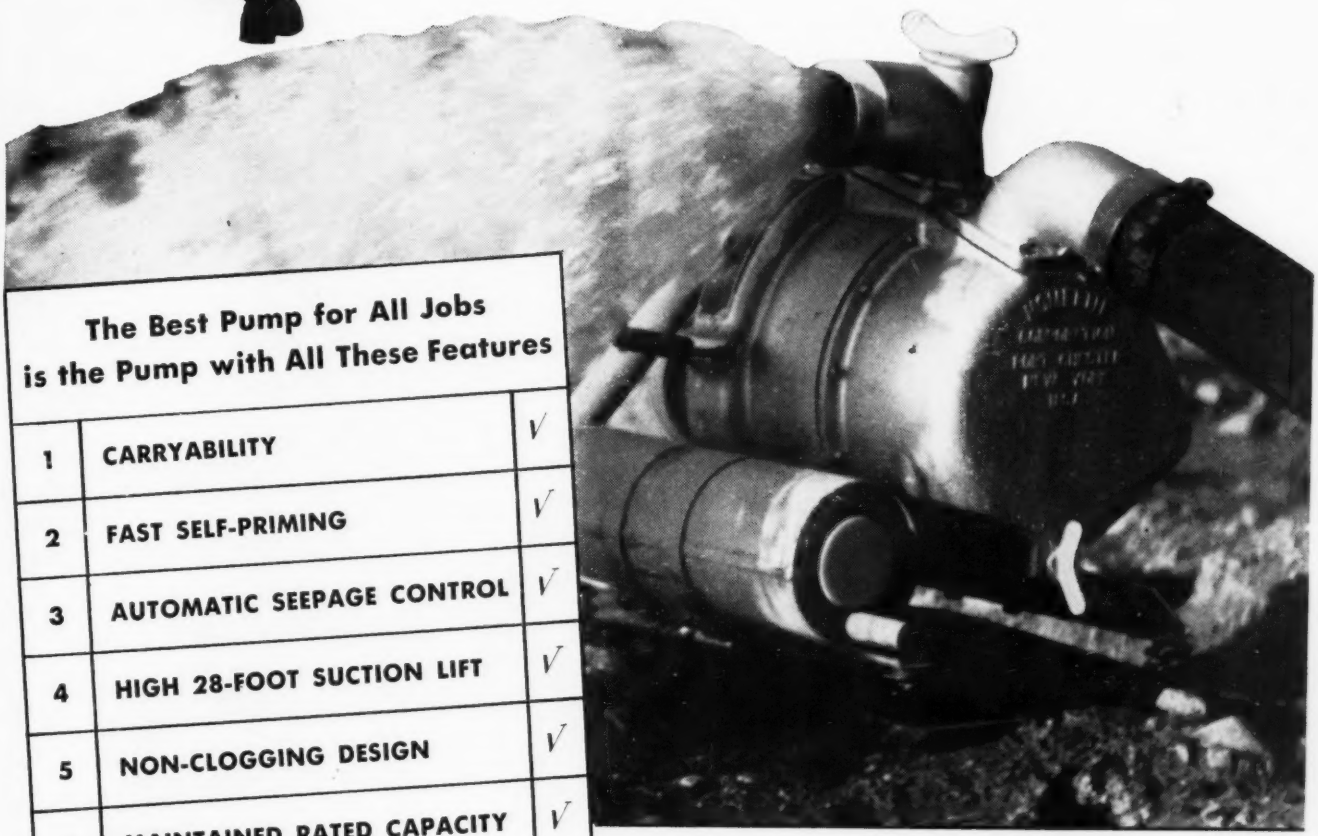
•

AMES BALDWIN WYOMING CO.
Parkersburg, W. Va. North Easton, Mass.



Homelite Carryable Pump ...with 9 Big Features

It weighs only 85 pounds... complete with built-in high-powered gasoline engine... and when it comes to performance, its nine big features are nine big reasons why a Homelite *Carryable* Pump is the best pump for all jobs... *your* jobs.



The Best Pump for All Jobs is the Pump with All These Features		
1	CARRYABILITY	√
2	FAST SELF-PRIMING	√
3	AUTOMATIC SEEPAGE CONTROL	√
4	HIGH 28-FOOT SUCTION LIFT	√
5	NON-CLOGGING DESIGN	√
6	MAINTAINED RATED CAPACITY	√
7	DISCHARGE PRESSURE	√
8	DEPENDABILITY	√
9	SIMPLE DESIGN AND OPERATION	√

See for yourself

Write today for our new illustrated bulletin No. L-503 that tells the *complete* story and shows how you can get faster, better pumping with Homelite *Carryable* Pumps.

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CORPORATION

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MANUFACTURERS OF HOMELITE *CARRYABLE* PUMPS · GENERATORS · BLOWERS · CHAIN SAWS

NOW Rolled from Alloy or Mild Steel

Caine CORR-PLATE **Steel Piling**

Rolled from a new steel alloy, Caine Corr-Plate is now 25% stronger and has nearly 100% greater corrosion resistance. This alloy makes available equal strength and nearly double the life in a 25% lighter piling. Approved by Highway Departments and U. S. Engineers.

Caine Corr-Plate Steel Piling has been used the world over for Foundations, Dams, Retaining Walls, Docks, Levees, Bulkheads, Sewers, Disposal Plants and hundreds of other jobs—it's stronger, lighter, nestable, easy to drive and water tight; can be re-used again and again.

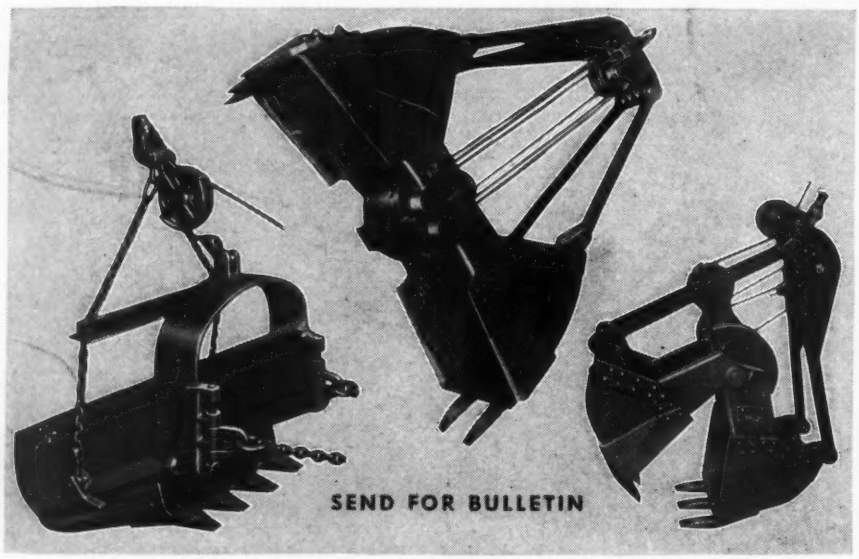
Doubled life and 25% greater strength make Caine Corr-Plate Steel Piling the bargain buy in piling!

NOW, MORE THAN EVER BEFORE . . .
STRONGEST PER POUND WEIGHT

CAINE STEEL COMPANY

STEEL PILING DIVISION, 1820 N. Central Avenue, Chicago 39, Illinois

2278-R



For Longer Life!

WELLMAN

Williams Type **BUCKETS**

Count on longer life and more efficient service..due to Wellman original **welded rolled steel construction.** You get the maximum digging power, and exceptional strength—without excessive weight! Specify Wellman, and you'll specify the best bucket for your purpose.

THE WELLMAN ENGINEERING COMPANY

7017 CENTRAL AVENUE • CLEVELAND 4, OHIO

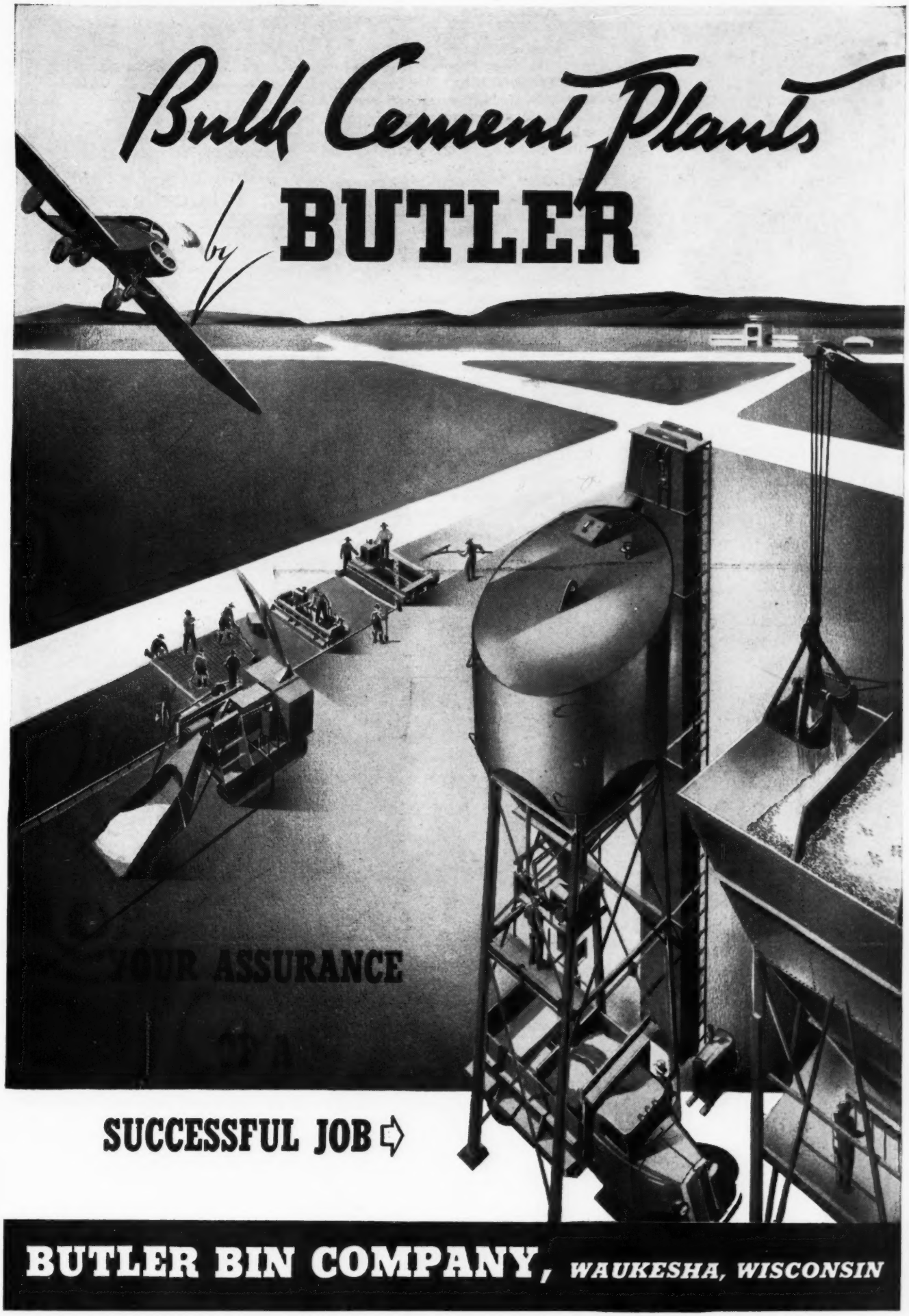
(Continued from page 166)

tional Harvester Co. . . . New officers of the **Midland Structural Steel Co.** are **Charles F. Jarrard,** president; **William Nemec,** secretary-treasurer; and **O. C. Robbins,** vice-president . . . **Kenneth R. MacKinnon** has been elected president of **Ebasco International Corp.,** N. Y. City . . . **John A. Reilly,** vice-president, N. Y. and New England area, **Arundel Corp.,** has been installed as president of the General Contractors Association of New York . . . **SKF Industries, Inc.,** has announced these appointments: **John H. Tipton** as assistant district manager of the Cincinnati office; **M. H. Courtenay** as assistant district manager of the Atlanta office; and **E. A. Hutson** as field engineer in the Railway Sales Department of the Chicago office.

Randolph H. Hoy, for the last 19 years sales manager of the Pittsburgh territory for the **Universal Atlas Cement Co.,** retired recently after 40 years of service with the cement company . . . **H. A. Scribner,** president of **Russell T. Gray, Inc.,** Chicago, is chairman of the 1948 Road Show Promotion Committee of the American Road Builders Association . . . **Ray Perin,** for 35 years the West Coast representative for **Elwell-Parker Trucks,** has been elected president of the **Materials Handling Association** of northern California . . . **Charles M. Bindner** and **T. A. Oberhellmann** have organized **Hammermills, Inc.,** at St. Louis, Mo., for the manufacture of a complete line of hammermills for use in the cement, construction and mining industries . . . **J. W. McCoy** has retired as vice-president and member of the Executive Committee of **E. I. du Pont de Nemours & Co.** . . . **C. F. Winchester,** for seven years executive secretary of the **Associated Equipment Distributors,** has established new offices in the Denrike Building, 1010 Vermont Ave., N.W., Washington 5, D.C.

Thos. J. Bannan, president of **Western Gear Works** and **Pacific Gear & Tool Works,** with plants in Seattle, Wash., and San Francisco and Los Angeles, Calif., has been elected a national vice-president of the National Association of Manufacturers. . . . **A. R. McMannis,** sales manager of the **U. S. Quarry Tile Co.,** Canton, Ohio, has been elected 1948 chairman of the Tile Council of America, and **R. E. Jordan, Jr.,** treasurer of the **Mosaic Tile Co.,** Zanesville, Ohio, vice-chairman. . . . **Manfred Bowditch,** formerly field director of the Saranac Laboratory and director of the division of Occupational Hygiene of the Department of Labor and Industries of Massachusetts, has been appointed director of health and safety of the Lead Industries Association. . . . **Harrison**

(Continued on page 170)


Bulk Cement Plants
by BUTLER
YOUR ASSURANCE
SUCCESSFUL JOB
BUTLER BIN COMPANY, WAUKESHA, WISCONSIN

(Continued from page 168)

Rogers, vice-president and general manager of **Rogers Bros. Corp.,** Albion, Pa., has become president of the **Truck-Trailer Mfrs. Association. . . . J. N. Lind** has been promoted to assistant general traffic manager of the **National Supply Co.,** with headquarters in the Grant Bldg., Pittsburgh, Pa. . . . **W. K. Cox,** assistant general sales manager of the **Caterpillar Tractor Co.,** has become advertising manager to succeed **Gerald M. Walker** who has retired after 33 years with Caterpillar and the Holt Mfg. Co., one of its predecessor companies. . . . **Walter F. Rockwell,** president of **The Timken-Detroit Axle Co.,** has been named secretary-treasurer of the Automotive and Aviation Parts Manufacturers Association, Inc., for 1948, succeeding **J. L. Myers** of the **Cleveland Graphite Bronze Co.**

NEW PLANTS—The Philadelphia Division of the **Yale & Towne Mfg. Co.** has moved into a new building at 205 East 43rd St., New York City, with its materials handling and technical sales service departments . . . The first production unit of the new Willow Island, W. Va., plant of the **Calco Chemical Division, American**

(Continued on page 170)

TOUGH • RUGGED • HANDY

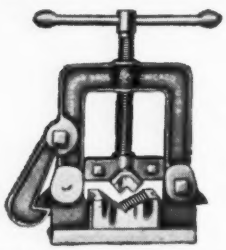
"WESTERN" STEEL TAPE

The extra heavy line, covered with chrome, makes the Lufkin "Western" Chrome Clad Steel Tape a regular bruiser for standing up to rough-and-tough handling. Drag it—scuff it—twist it—you can't damage the smooth, rust-resistant chrome "life jacket". Jet black, easy-to-read markings are recessed — they can't wear out. Line is easily removed from husky frame. Buy the Lufkin "Western" from your dealer. For free catalog write THE LUFKIN RULE CO., SAGINAW, MICH., New York City.

EASY TO READ MARKINGS THAT ARE DURABLE

LUFKIN FOR ACCURACY

ARMSTRONG BROS.
BETTER PIPE TOOLS



Stocked by Leading Tool Departments

"ARMSTRONG BROS." Pipe Vises are built for lifetime service with *unbreakable* drop forged steel hooks. Other design improvements include: oval handle ends (will not pinch hands), replaceable tool steel jaws with milled teeth, and on sizes 70 and 71, a solid 1-piece jaw that prevents kinking of small pipe. There are always extra quality features in an "ARMSTRONG BROS." Pipe Tool.

ARMSTRONG BROS. TOOL CO.
5234 W. Armstrong Ave., Chicago 30, U.S.A.
Eastern Whse. and Sales: 199 Lafayette St., New York 12, N. Y.
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How to
PLAN and DESIGN
practical — durable
STRUCTURES

Here's a wealth of practical data that helps develop your engineering judgment

This outstanding new book spotlights the engineering principles and procedures that underlie the vital planning—and designing—of industrial structures. It brings you specific help on choice and proper use of materials—discusses fabrication and construction methods—illustrates good practice in building with steel, wood and concrete—gives you a better understanding of structural action. It packs 500 pages with *practical* **engineering** . . . priceless experience gained through the planning and the detailed designing of many millions of dollars worth of construction.

Just out!

PLANNING
INDUSTRIAL STRUCTURES

By Clarence W. Dunham

Consulting Structural Engineer for the New York Office of the Anaconda Copper Mining Co.; Author of *"The Theory and Practice of Reinforced Concrete"*

500 pages, 340 illustrations, $6.00

Step by step, this book outlines planning procedure—points out the factors you must evaluate in considering location . . . general size and shape . . . the kind of service for which a structure is designed. It illustrates planning which insures proper lighting and ventilation—emphasizes the effect of soil conditions on your planning—answers common problems of foundations for structures and machines—discusses typical construction of floors, walls and roofs. Complete with illustrations, charts and diagrams, the book helps you develop a keen structural engineering sense—enables you to "create" industrial structures—and others—that are sound, practicable and durable.

Here are the 16 helpful chapters:

1. General Planning of Structures
2. Exploration of the Site
3. Daylighting Industrial Plants
4. Electric Lighting and Power
5. Ventilation
6. Roofs
7. Floors
8. Walls and Partitions
9. Steel Mill Building
10. Multistory Steel Buildings
11. Concrete Structures
12. Wooden Structures
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Send me Dunham's **PLANNING INDUSTRIAL STRUCTURES** for 10 days' examination on approval. In 10 days I will send $6.00 plus few cents postage, or return book postpaid. (Postage paid on cash orders.)

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($7.20 in Canada; order from McGraw-Hill Company of Canada Ltd. 12 Richmond St. E., Toronto 1)

NEW WAY TO CROSS A RIVER... IN THE DRY

Red River crossing of the 647-mile Texas-Illinois pipe line at DeKalb, Texas. Above: extending peninsula from shore to center of river. At right: Joining pipes below water-level in mid-stream. Contractor, Oklahoma Contracting Co., Inc., Dallas.

Novel, effective, and profitable was the way the contractor got this crude oil pipeline across a Texas river *on dry land.*

A sand peninsula was extended from the shore to a point beyond the center of the stream. A trench was dug in which pipe was laid and plugged —while Moretrench Wellpoints efficiently kept the operation dry. Then, all equipment was moved to the opposite bank and the procedure repeated. Pipes from each side were joined in mid-river — *20 feet below water level* **still in the dry.**

The economy and other advantages experienced on this project are typical of every Moretrench job. Make sure of progress and profit on *your* wet work by predraining with a Moretrench Wellpoint System.

MORETRENCH CORPORATION

90 West St., New York 6 | 3037 S. Christiana Ave., Chicago 23, Illinois | 7701 Interbay Blvd., Tampa 6, Florida | 315 W. 25th St., Houston 8, Texas | Rockaway, New Jersey

SAVE with STERLING'S TUBULAR FRAME

In Sterling's All-Steel Wheelbarrow with Tubular Frame, you get the most barrow for your money. Cost-saving features include: steel tray with lapped corners — All welded construction, no rivets — Steel reinforcing rod around top edge — V front braces and cross supports — All parts securely anchored to the sturdy one-piece steel tube. Truly a barrow that withstands hard usage over a long period of time. Be sure to specify STERLING on your next barrow order. Delivery will be as prompt as conditions permit.

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

Look for this Mark of STERLING Quality

Sterling WHEELBARROWS

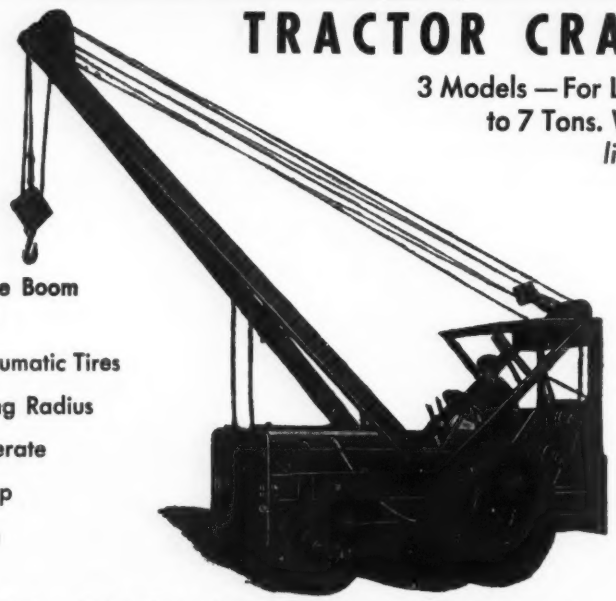
MERCER

"The Name that Carries Weight"

MATERIAL HANDLING EQUIPMENT

TRACTOR CRANES

3 Models — For Loads Up to 7 Tons. *Write for literature.*



Special Type Boom Designed

Solid or Pneumatic Tires

Short Turning Radius

Easy to Operate

Low Up-Keep

Clear Vision

Live Boom

MERCER ENGINEERING WORKS, INC.

Plant: Clifton, N. J.

SALES REPRESENTATIVE

MERCER-ROBINSON COMPANY, INC.

30 CHURCH ST., NEW YORK 7, N. Y.

(Continued from page 170)

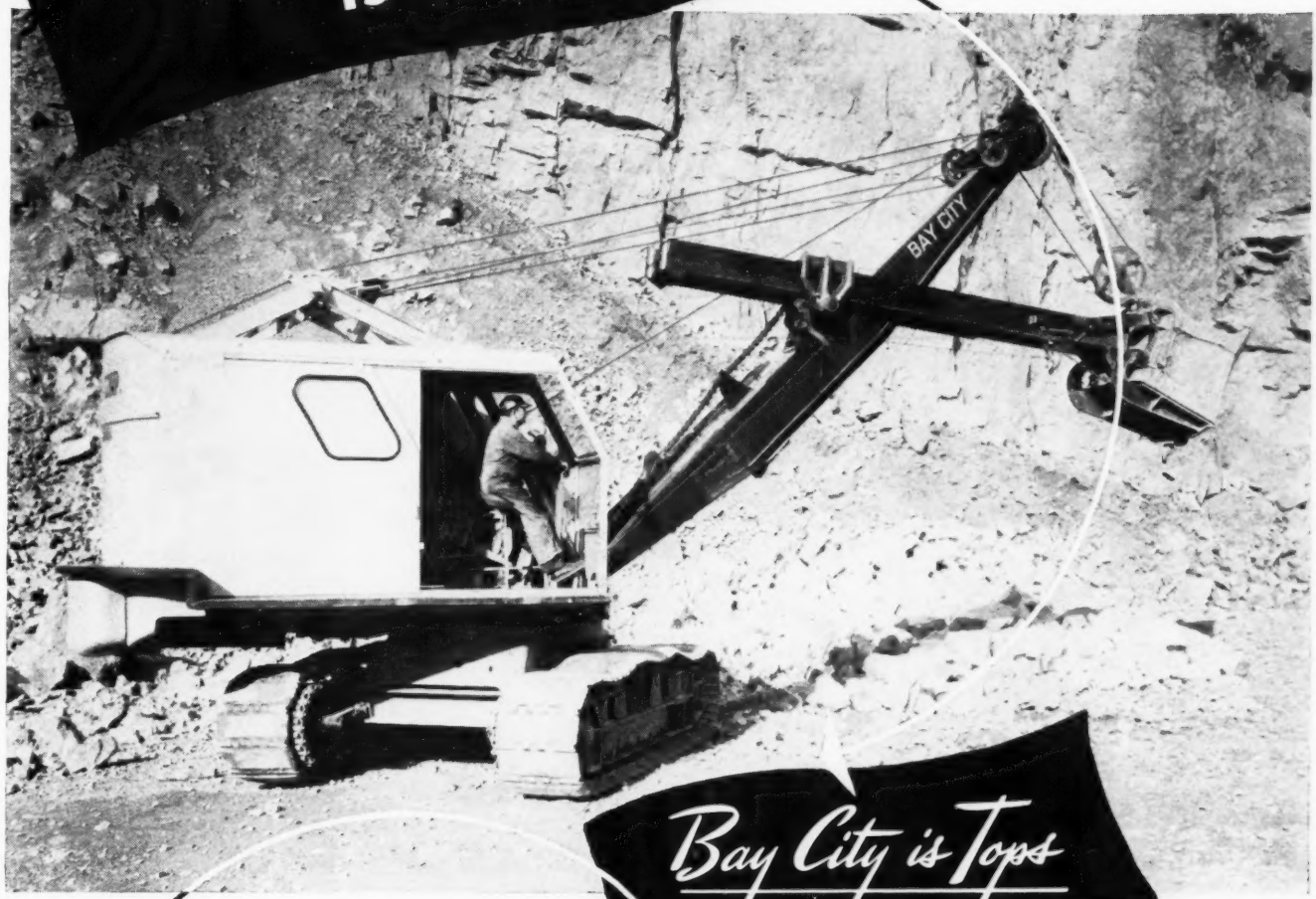
Cyanamid Co., is now in operation . . . Completion of a new **V. & E. Mfg. Co.** office, engineering and assembly building in Pasadena, Calif., has been announced . . . The **Linde Air Products Co.** has started construction of an oxygen filling station and acetylene producing plant at Creve Coeur, Peoria, Ill. . . . **Fairbanks-Morse & Co.** held a recent open house to mark the opening of its new office and warehouse addition at St. Louis, Mo. . . . **Mack Trucks, Inc.** has disclosed that it is planning to spend $10,000,000 in the next two or three years for machinery, tooling, new buildings and renovation . . . Construction is well advanced on a new plant for the **Hillsman Equipment Co.** in Melrose Park, Chicago . . . **The American Brake Shoe Company's** two non-ferrous foundries were recently completed at Niles, Ohio, and Meadville, Pa. . . . The Western Division of **Monsanto Chemical Co.** has announced plans to install a small plant at Decatur, Ill. . . . **Screen Equipment Co., Inc.,** has opened its new factory and general offices in Buffalo, N. Y. . . . **Allis-Chalmers Co.** has just completed and occupied its newest branch buildings at Memphis, Tenn.

FIELD SALES CHANGES—T. C. Combs is now responsible for activities in the Southwest and Mexico for **Timber Structures, Inc. . . . William F. Lanius** is sales representative at Portland, Ore., for the **Marion Power Shovel Co.** . . . Appointment of **George A. Baldwin** as manager of the Los Angeles sales office of **Blackmer Pump Co.** has been announced . . . **J. J. Robinson** and **Glen L. Graff** have been appointed divisional sales managers for the eastern and western divisions for **Marsh Wall Products, Inc.,** of Dover, Ohio . . . **John A. Roebling's Sons Co.** has appointed **L. H. Van Dike, Jr.** as Detroit, Mich. representative . . . **Samuel A. Madrid** is western representative for the **Smith Engineering Works,** of Milwaukee, Wis. . . . **T. N. Barksdale** has assumed new sales responsibilities at the **Bemis Brothers Bag Co.,** Memphis sales office . . . **Muzaffer Unsal,** of Istanbul, Turkey, will represent the **Universal Concrete Pipe Machinery Co.** in Turkey . . . **Jack Brand** will handle industrial sales for State of Colorado for the **Thermoid Co.** of Trenton, N. J. . . . **L. V. Williams** recently joined the sales department of the **Wagner Electric Corporation's** branch at Atlanta, Ga. . . . **W. D. Haley** is district manager of the Pacific Northwest territory for the **Lima Shovel and Crane Division** . . . **Norton P. Bosemer** is now in charge of the Los Angeles office for **Tube Turns, Inc.**

R. L. McCaffrey has been appoint-

(Continued on page 174)

WHEN THE GOING IS ROCKY...



Bay City is Tops

No matter how big and tough the rock pile, Bay City performance is always just enough *bigger and tougher to clean up the job . . . fast!* Illustrated is the Bay City Model 65, 20-ton crane, equipped with 1¼ yard shovel, 21′ boom, 16′ handle, and powered by a Cummins HB 1-600 Diesel. For complete particulars and assistance in determining the material handling equipment best suited to your requirements, *see your nearest Bay City dealer or write direct.*

BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

SEE YOUR NEAREST DEALER for Bay City excavating and material handling equipment in sizes from ⅜ to 1¼ yards having crane rating up to 20 tons. Both crawler and pneumatic tire mounting.

BAY CITY SHOVELS, INC. • BAY CITY, MICHIGAN

RUD-O-MATIC
TAGLINE

Provides positive, steady tension — holds buckets steady under all working conditions.

Spring tension holds buckets steady. No weights, pins, tracks, or carriages. Cable saving more than pays for RUD-o-MATIC. Compact—easily installed. Eight models to fit all bucket sizes.

RUD-o-MATIC Taglines are used as standard equipment by most crane manufacturers. Spring tension is powerful enough to hold a clam shell bucket steady. Operates with boom at any angle. Compact – it can be installed in less than thirty minutes. No pins, weights, tracks, or carriages to wear or be replaced. Taglines are complete with fairlead U bolt clamping plates, and cable attached. Immediate delivery – see your equipment dealer – or write –

• *Dealers—selected territories in Midwest and Northwest are still open. Write for all details.*

RUD-o-MATIC combination Magnet Reel and Tagline . . . operates on spring tension principle with tagline attached to magnet to steady – and electric cable fastened to magnet connections with all slack needed to prevent cable from being pulled or jerked loose from connections. Exclusive with RUD-o-MATIC.

McCAFFREY RUDDOCK *Tagline* Corporation

2131 East 25th St., Los Angeles 11, Calif.

(Continued from page 172)

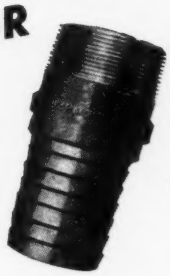
ed assistant manager of the Lincoln, Neb., branch office of the motor truck division of the **International Harvester Co. J. R. Scott,** formerly assistant manager at Lincoln, has been transferred to Grand Island, Neb., in a similar capacity. . . . **Jason D. Rudding** has become sales representative in Maryland, eastern New York and Pennsylvania, New Jersey and the New England states for **Richkraft Co.,** Chicago, Ill. . . . **O. B. Roberts,** manager of the Industrial Products Sales division of **B. F. Goodrich Co.** at Chicago has retired and is succeeded by **John S. Gulledge,** manager of the Cincinnati, Ohio, district. **George W. Green** is named manager of manufacturers' sales of industrial products in the Chicago district and **E. E. Haupt** succeeds Gulledge at Cincinnati. **Robert T. Kain,** manager of the industrial products district office in San Francisco has been transferred to Dallas, Tex., as manager, succeeding **D. R. Anderson,** assigned to special sales duties. . . . **Link-Belt Co.** has moved its Pittsburgh, Pa., district sales office to 5020 Centre Ave. . . . **Thomas E. Bertelsen** has been appointed district sales manager of the Indiana-Michigan area of the **Universal Atlas Cement Co.** . . . **Richard H. Diesel** is now assistant general sales manager of the Stamford, Conn., division of **Yale & Towne Mfg. Co.**

HEADQUARTERS SALES—R. J. Nymberg of Detroit, Mich., has become general sales manager of the **Hercules Steel Products Corp.,** Galion, Ohio . . . **Roy H. Warmee** is sales manager of the Moduflow division, **Minneapolis - Honeywell Regulator Co.** . . . Appointment of **H. B. Wilson** to the post of sales engineer has been announced by the **Atlas Equipment Corp.,** Pittsburgh, Pa. . . . **Joseph A. Sullivan** has become manager of the advertising bureau of **Universal Atlas Cement Co.** . . . **Steve C. Brown** is now advertising manager of the **American Hoist & Derrick Co.** . . . **C. C. Walker** of Boston has been elected a commercial vice-president of the **General Electric Co.,** responsible for customer relations in the New England territory . . . **H. M. Cahill** is now sales manager of the **Small Engine Department,** Heavy Machinery Division, of the **Nordberg Mfg. Co.,** Milwaukee, Wis. . . . **R. H. Cochran** has been named general sales manager of the **Metropolitan Paving Brick Co.**

PLANT PERSONNEL—R. G. Carter, former service engineer, is now assistant service manager for the **Lima Shovel and Crane Division** . . . **H. A. Pratt** is parts and service manager for the **Davey Compressor Co.,** at

(Continued on page 176)

ASK FIRST FOR

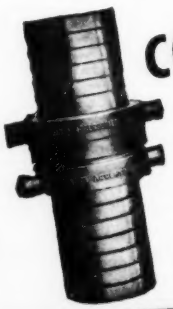


Series 650 Type BC—Brass Combination Male Hose Nipple, the ideal nipple connection for petroleum products, for salt water and certain corrosive liquids. Sizes 1" to 6" I.P.T.

LE-HI

Series 150-B—The only Universal Type Hose Couplings with the patented "Safety-Locking" feature that positively prevents accidental uncoupling. Rugged, lightweight bronze alloy. REAL SAFETY for operators. Interchanges and locks with other standard couplings. Hose sizes ½", ¾" and 1".

BRASS HOSE COUPLINGS



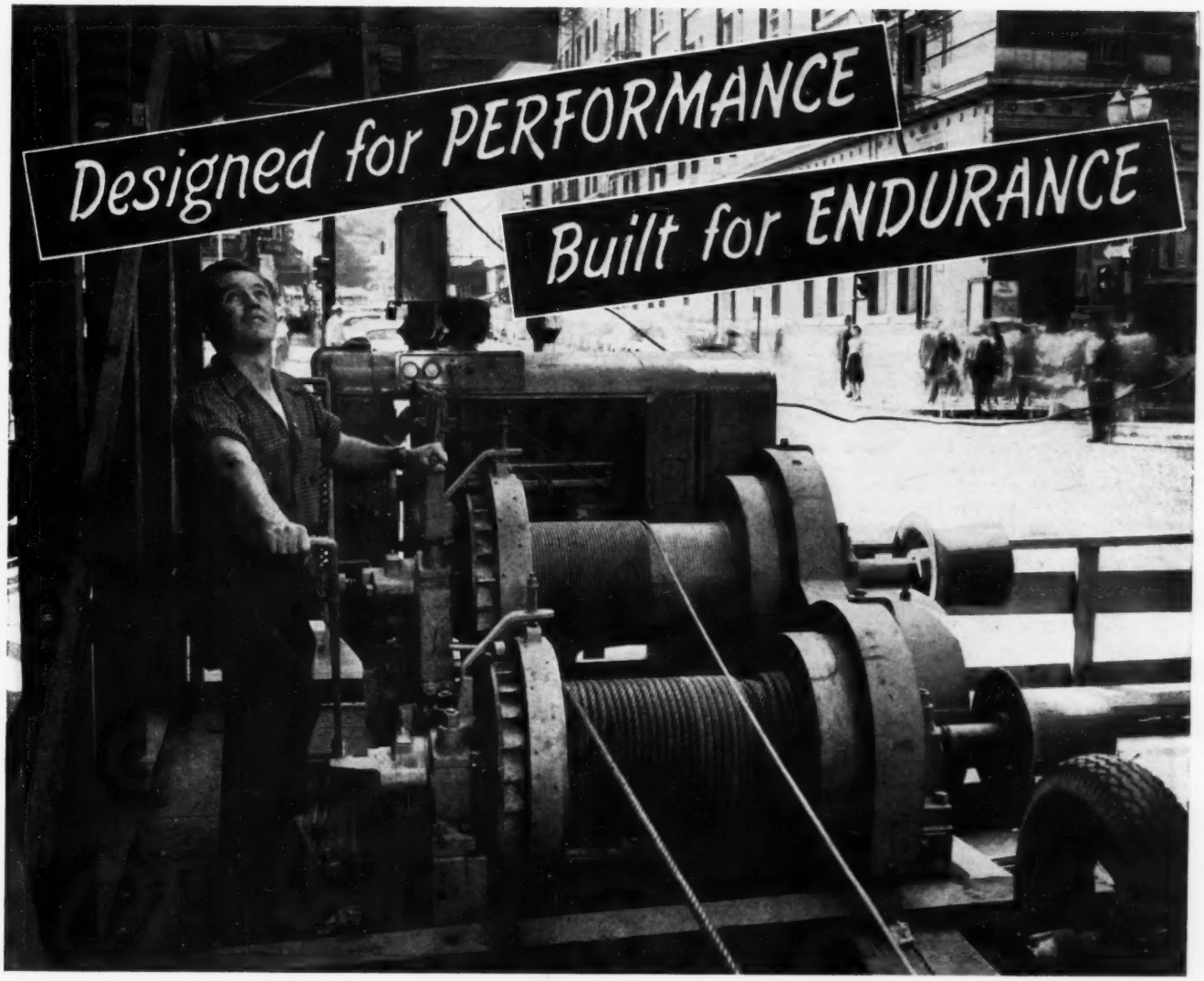
Series 800—Brass Suction or Water Discharge Hose Coupling—Pin Lug Type. For hose sizes from 1¼" to 6" I.P.T. Also made in Garden or Heavy Duty Water Hose sizes ½" to 1" with hexagon or octagon swivel nut.

LE-HI MAKES A GOOD CONNECTION!

Ask your local distributor for these tough, dependable LE-HI Hose Couplings — NEVER SOLD DIRECT.

LE-HI HIGH and LOW PRESSURE HOSE COUPLINGS

HOSE ACCESSORIES CO.
2738 North 17th Street
Philadelphia 32, Pennsylvania



Clyde Gasoline Hoists are extra tough and rugged . . . heavy duty through and through. They are built that way to give construction men a machine they can depend upon . . . one that will handle the job swiftly and safely, day after day, year after year.

Owners and operators alike are enthusiastic about the high quality of Clyde hoists . . . their low cost of maintenance, ease of operation and productive capacity.

Why not let your Clyde dealer show you how a heavy duty Clyde gasoline hoist will save time and money for you on your next building job. Write for Bulletin K-4A on Clyde gasoline hoists.

HOISTS . . . DERRICKS . . . WHIRLEYS . . . . . CAR PULLERS . . . HAND POWERS
BUILDERS TOWERS . . . DECK MACHINERY . . . TANDEM ROLLERS
LOGGING EQUIPMENT

Manufactured by

CLYDE IRON WORKS, Inc.
Duluth 1, Minnesota
Subsidiary of Barium Steel Corp.

In Concrete Vibration . . .
A FLEXIBLE SHAFT must be GOOD . . .
to withstand 7200 Shocks a minute!
That's what concrete vibration imposes on the vibrator drive—the grueling task of standing up under 7200 shocks every sixty seconds!
And here's why you can depend on the STOW Concrete Vibrator with STOW Flexible Shafting to give such outstanding performance. STOW Concrete Vibrators are the development of a pioneer in concrete vibration. STOW Flexible Shafting is the original flexible shaft design. Both are built to do the job right. STOW experience, STOW design, and STOW reputation guarantees you everything you can expect from concrete vibration.
STOW Flexible-Shaft Vibrators enable you to join lengths of shafting up to a maximum of 35 feet from motor, to reach the deepest form bottom. Each shaft joined by ball-bearing couplings.
THERE'S A STOW VIBRATOR for Every Concrete Job!
● 3 hp Vibrator for wide uses in harshest concrete. Variable speed.
● 1½ hp, general purpose.
● 1½ hp, direct driven. For use in light forms and shallow slabs.
Get all the facts Write for your copy of new pamphlet containing latest information on concrete vibrating units.
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CONVEYOR, ELEVATOR and TRANSMISSION BELTING
all widths and plys

V-BELTS all sizes

HOSE all sizes

AIR	WATER	SUCTION	COMPRESSOR
FUEL	STEAM	WELDING	PILE DRIVERS
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62-66 PARK PLACE NEW YORK 7, N. Y.
Phone: BArclay 7-9793

(Continued from page 174)

Kent, Ohio . . . **N. G. Belury** has been appointed vice-president of the Engineered Castings Division of the **American Brake Shoe Co.** . . . **Frank E. Lobaugh** is now manager of the **Lumnite Division, Universal Atlas Cement Co.** . . . **The National Supply Co.** has announced the transfer of **Lloyd A. Harris,** diesel engine specialist, from the company's superior engine division to the plant products division . . . **Herman F. Haven** has been appointed western division parts manager for the **Caterpillar Tractor Co.**

DISTRIBUTORS—**The Liquid Conditioning Corp.** of Linden, N. J., announces the addition of **John R. Lill** to the staff of its Washington, D. C., representative, **L. S. Luther & Co.** . . . **W. K. Sowdon Co.,** New York City, has severed connection as manufacturer's representative for sanitary equipment with the **American Well Works** of Aurora, Ill., but is continuing other representations . . . **W. B. Whenthoff** is again in charge of marketing the products of **Tube Turns, Inc.,** in the Houston, Texas, area . . . The **G. A. Coffey Co.** of 123 Commerce St., Dallas, Tex., is now representing the **Ralph B. Carter Co.** in this area . . . The **Saran Lined Pipe Co.,** a newly organized firm, will act as distributors for the **Dow Chemical Co.'s** recently developed specialty pipe and fittings . . . **Hunt-Jordan Co.,** with offices at 1147 S. Independence Blvd., Chicago, has been organized to handle representation for resistance welding equipment of the **Progressive Welder Co.,** Detroit.

MISCELLANY—**Robert H. Fox,** who has been with **Six Wheels Inc.,** for seven years, has formed the **Robert H. Fox Co.,** Van Nuys, Calif., to specialize in the engineering and sales of special off-the-highway trucks, cranes, shovels and crane carriages . . . **Chevrolet Motor division** in December produced 110,049 trucks and passenger cars . . . **Armstrong Bros. Tool Co.** has new general offices and works at 5200-5300 W. Armstrong Ave., Chicago, Ill. . . . **Hewitt-Robins, Inc.,** N. Y. City, has organized a new division, **Robins Engineers,** to handle the contracting phase in the design engineering and installation of material handling and processing plants . . . New members in the **American Concrete Pipe Assn.,** are **Foltz Concrete Pipe Works,** Lexington, N. C.; **Schmidt Concrete Products, Inc.,** St. Joseph, Mo.; and **Lanna Construction Co., Ltd.,** Prague, Czechoslovakia . . . **General Electric Co.** has announced price reductions affecting a wide range of productions, expected to save consumers about $50,000,000 this

(Continued on page 178)

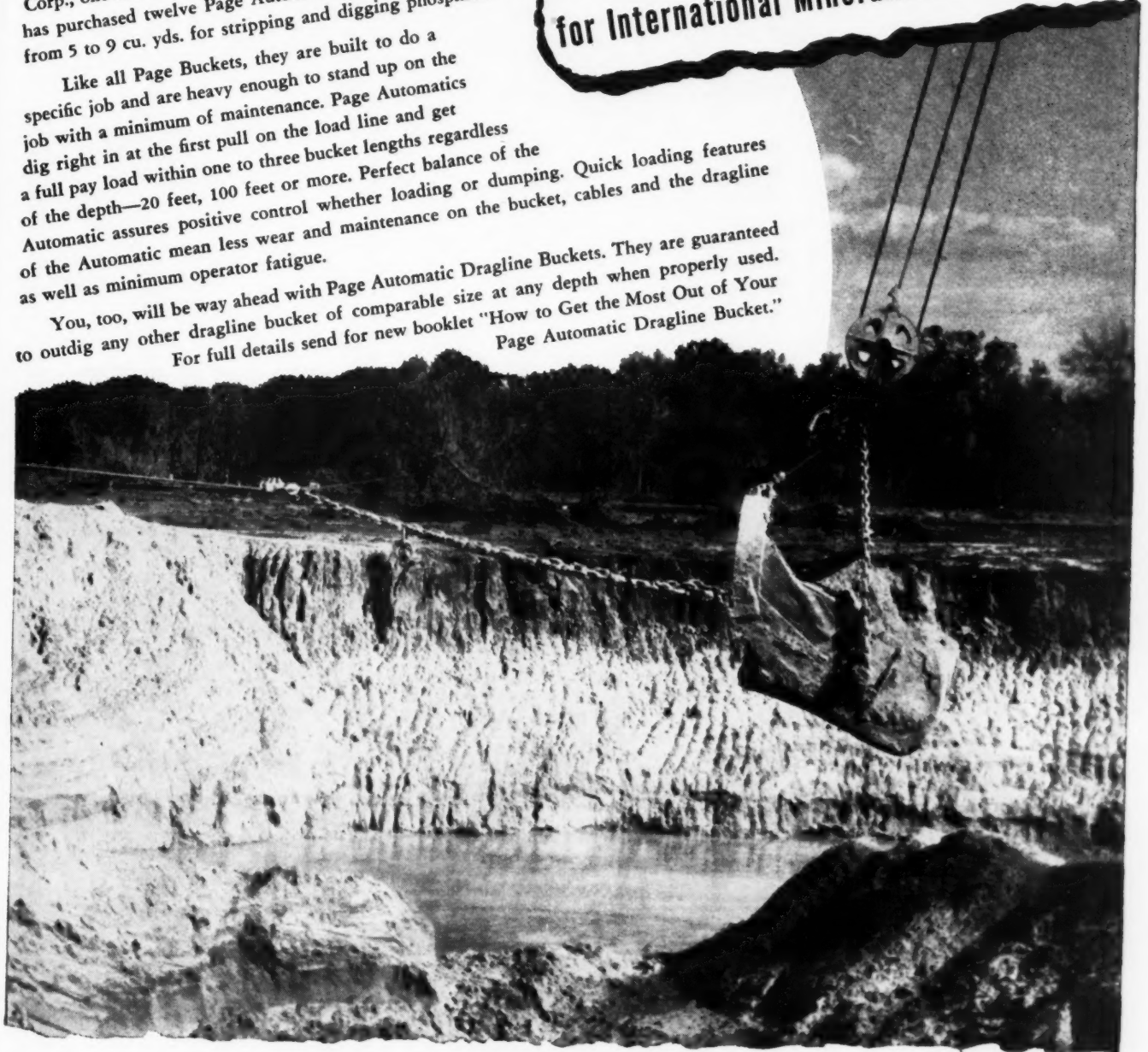
12 PAGE BUCKETS
for International Minerals & Chemical Corp.

Whether your stripping or earthmoving jobs run into millions of yards per year like those of International Minerals & Chemical Corp. or a few thousand yards, you'll be way ahead in yards moved and savings when you use Page Automatic Dragline Buckets. International Minerals & Chemical Corp., one of the world's largest phosphate producers, has purchased twelve Page Automatics ranging in size from 5 to 9 cu. yds. for stripping and digging phosphate.

Like all Page Buckets, they are built to do a specific job and are heavy enough to stand up on the job with a minimum of maintenance. Page Automatics dig right in at the first pull on the load line and get a full pay load within one to three bucket lengths regardless of the depth—20 feet, 100 feet or more. Perfect balance of the Automatic assures positive control whether loading or dumping. Quick loading features of the Automatic mean less wear and maintenance on the bucket, cables and the dragline as well as minimum operator fatigue.

You, too, will be way ahead with Page Automatic Dragline Buckets. They are guaranteed to outdig any other dragline bucket of comparable size at any depth when properly used.

For full details send for new booklet "How to Get the Most Out of Your Page Automatic Dragline Bucket."



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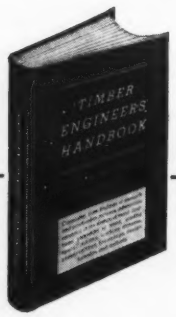
PAGE *Automatic*
DRAGLINE BUCKETS and WALKING DRAGLINES



The findings of the last ten years' research in timber engineering

TIMBER ENGINEERS' HANDBOOK

Edited by HOWARD J. HANSEN, Professor of Mechanics, University of Florida

Timber Engineers' Handbook presents the results of the research of the past ten years on the use of wood as a structural material. It contains the latest information necessary for the design of wood structures, including the properties of wood, grading specifications, working stresses, preservatures, fastenings, design formulas and methods. The discussion is not limited to a few species, but covers all the woods in use in this country. In this comprehensive book, Professor Hansen has included all available formulas for timber design and presents examples showing how to design a given item step-by-step. He has illustrated the book profusely with charts and tables, and has devoted an entire section to the terminology of timber engineering and explanations of common abbreviations employed in the field. A unique feature of the book is the section in the appendix consisting of 494 pages giving the most recent stress recommendations of the National Lumber Manufacturers Association.

This complete handbook will be an invaluable aid to the engineer in coping with the problems of field work, and it will prove a reliable source of basic information for loggers, manufacturers of lumber building materials, and, in fact, for anyone handling wood products.

Contents: Factors Affecting Strength; Grading Rules & Working Stress; Standard Terms & Abbreviations; sizes and Properties of Sections; Weights; Loadings; Simple Beams; Continuous Beams; Trussed Beams; Columns-Solid; Spaced Columns; Combined Stresses; Fastenings; Trusses; Glued Laminated Construction; Plywood; Floor Systems; Buildings; Poles and Piling; Protection & Maintenance.

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Address .....

City ..... Zone ..... State .....

Employed by .....

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(Continued from page 176)

year . . . **Stone & Webster, Inc.,** has acquired **E. B. Badger & Sons Co.** to expand the engineering and construction activities of its subsidiary, **Stone & Webster Engineering Corp.** in the process and industrial field . . . **Richard H. DeMott,** vice-president in charge of sales of **SKF Industries, Inc.,** Philadelphia, Pa., has been elected vice-president of the Exhibitors Advisory Council . . . **The Huber Mfg. Co.,** Marion, Ohio, is celebrating its 85th anniversary this year. It is also the 40th anniversary of the Huber steam roller . . . Net sales of **Marion Power Shovel Co.** exceeded $19,500,000 in 1947 . . . Effective Feb. 1, Kellogg division of the **American Brake Shoe Co.,** maker of air compressors and paint-spray equipment, will establish firm prices on all products instead of "price in effect at time of shipment." . . . Chicago has made a contract with the **General Electric Co.** for 7,260 street lights . . . **International Harvester Co.** has bought the principal stock ownership of the **Metropolitan Body Co.** of Bridgeport, Conn., makers of special type of bodies for lighter models of motor trucks.

The **Allis-Chalmers Mfg. Co.** of Milwaukee, Wis., recently celebrated

(Continued on page 182)

SAVE $ and INCREASE TRACTOR POWER

The Bulldozer Blade Nu-Edge Bar is butt-welded to new or worn blade and welding head covered with a thin layer of hard-surfacing electrode—Affording 2000% savings in blade replacements.

BULLDOZER TRACTOR GRIP-LUGS are easily welded to any size grouser shoe without dismantling assembly. Made of special work hardening steel which becomes tougher with use—outwearing original grouser.

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7835 BROADWAY • CLEVELAND 5, OHIO

Look to CMC FOR THE BEST IN EQUIPMENT

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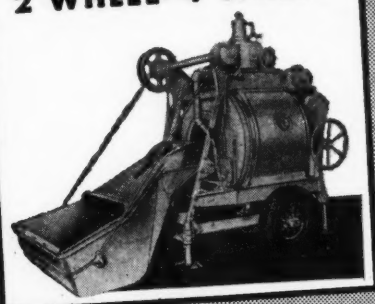
2 WHEEL—4 WHEEL



JETCRETE GUNS

PUMPS
CENTRIFUGAL
DIAPHRAGM AND HIGH PRESSURE

Unit for unit—Feature for feature—Dollar for dollar—You can depend upon CMC Equipment to render "TOP" performance. See your CMC Distributor, today, or write for catalog. Get the full details—then decide.

CONSTRUCTION MACHINERY CO'S.
WATERLOO, IOWA

MAKING THE NATION'S GREATEST HIGHWAY SAFER IN RECORD TIME!

● The day this picture was made the Austin Road Company of Dallas, Texas laid 8,220 ft. of 3 ft. shoulder to widen Route 66 east of Amarillo. In spite of the fact that traffic was maintained, high daily output placements ran up to 8,500 ft.

Simple equipment, a well co-ordinated organization and a MultiFoote 34-E Paver made this record possible!

One of the outstanding things about MultiFoote Pavers is their dependability. They are built to keep a' running. Simplicity of design makes upkeep and adjustment easy. Smooth control from the high operating platform, the wide skip, the split-second discharge and the fast acting bucket get material on the road in a hurry. These are the things that make records.

You can have this same MultiFoote performance on your jobs too. Let us send you the details on MultiFoote design and construction. You will be interested in MultiFoote advantages

THE FOOTE COMPANY, INC.
1910 State Street, Nunda, New York

MULTIFOOTE CONCRETE PAVERS

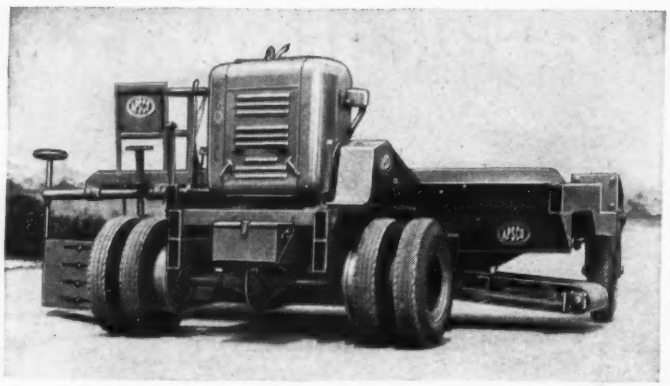
Ask about the MultiFoote Duo Mix (Dual Drum Paver) and the Adnun Black Top Paver

Builders of
Adnun Black Top Pavers, MultiFoote Concrete Pavers and Foote Kinetic Mixers

ALMOST INDISPENSABLE

. . . IF YOU WANT A FAST, ECONOMICAL JOB OF

ROAD WIDENING



HERE IS *THE* WIDENER *APSCO'S* MODEL 80.

Two man crew • Powerfully built • Handles any aggregate up to 6" • 2' to 8' strips and any depth • No raking or fill-in required • In most cases, no forms required • It's really a honey!

Send for complete specifications!

THE ALL-PURPOSE SPREADER CO.

FULLER ROAD . . . ELYRIA, OHIO

IMPROVED OWENS DIG for

A MOUTHFUL AT EVERY BITE

IMPROVEMENTS EVERYWHERE

Long experience and intensified experimentation has enabled Owen engineers to originate designs, utilize special alloys and develop methods of manufacture that reduce weight, increase strength and provide greater wear resisting qualities.

"Owen Clamshell Buckets Insure a Bigger Day's Work."

The Owen Bucket Company

6020 Breakwater Avenue, Cleveland, Ohio

Branches: New York • Philadelphia • Chicago • Berkeley, Cal.

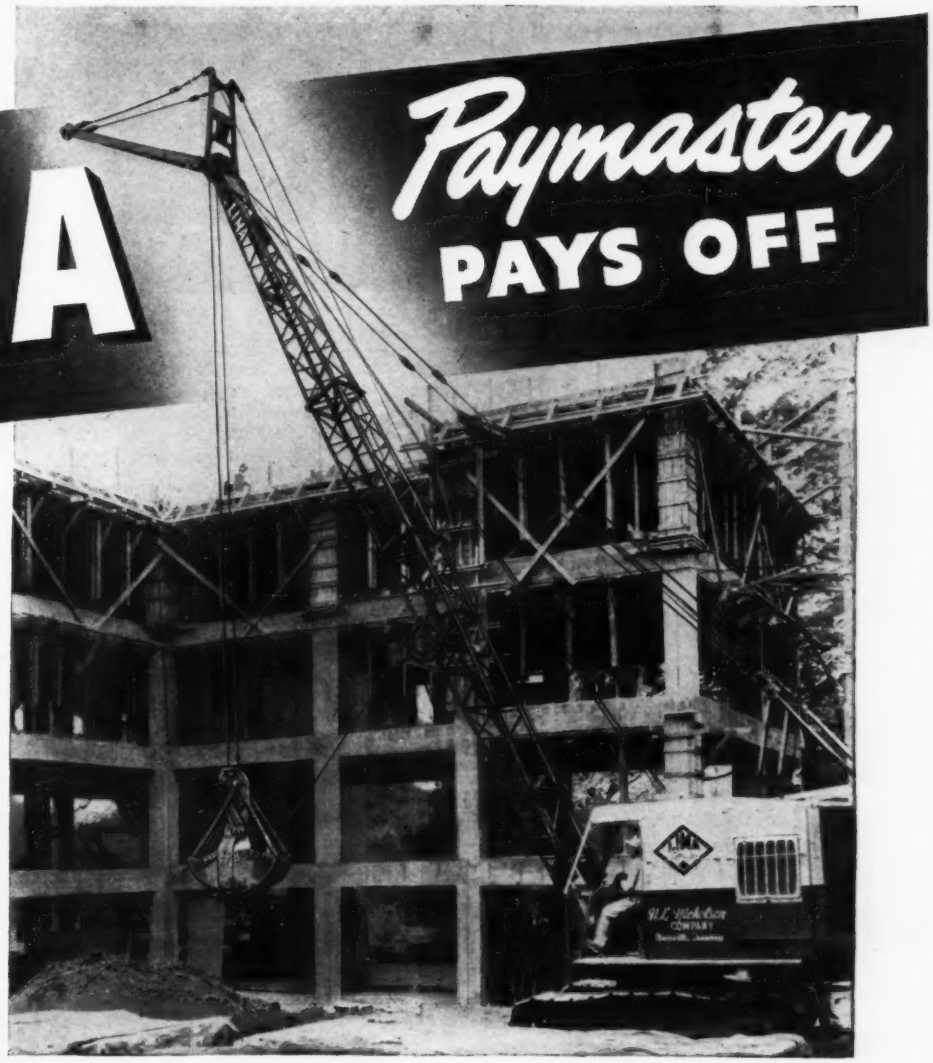
(Continued from page 178)

its 100th anniversary . . . **Merit Paper Corp.** has announced the establishment of a Building Trades Division to handle building papers for roofing, siding, and other uses . . . **Jaeger Machine Co.** has moved its export division to 550 West Spring St., Columbus 16, Ohio . . . **Johns-Manville Corp.** has announced the purchase of **Van Cleef Bros., Inc.,** of Chicago, manufacturers of industrial and automotive products . . . **The Fibre Conduit Co.,** of Orangeburg, N. Y., has changed its name to the **Orangeburg Manufacturing Co., Inc.**

Goodman Iron & Metal Co., Zanesville, Ohio, has changed its name to **The Goodman Steel & Supply Co.** . . . Long range management development programs which encourage supervisory personnel to broaden technical knowledge and accept greater responsibility are advocated by **Harry F. Gracey,** training director of **SKF Industries, Inc.** . . . Since December, 1939, a total of 3,771 men and women of **B. F. Goodrich Co.,** Akron, Ohio, have completed 20 years of continuous company service. . . . **Jaeger Machine Co.,** Columbus Ohio, manufacturer of construction, paving and industrial machinery, has moved its eastern regional office from 8 E. 48th St., New York City, to 1504 Widener Bldg., Philadelphia, Pa. . . . **J. D. Ball,** director of the truck and fleet sales department of the **Ford Motor Co.,** says that a marked increase in the number of Ford dealers who are setting up separate truck sales and service establishments reflects a keener dealer interest in the truck business. . . . Development of a hot material conveyor belt using glass instead of cotton fabric is announced by **B. F. Goodrich Co.,** Akron, Ohio. . . . **L. B. Smith,** vice-president and director of the **A. O. Smith Corp.,** Milwaukee, Wis., has been appointed general manager of the Kankakee Works of that company. . . . **Butler Mfg. Co.,** Kansas City, Mo., steel fabricator, has bought a building at Richmond, Calif., to serve Pacific Coast customers better. . . . **U. S. Plywood Corp.,** New York, and **Mengel Co.,** Louisville, Ky., have jointly acquired a two-thirds stock interest and fifty per cent voting power in **Blanchard Deco Plastics, Inc.** The name is to be changed to **Deco Plastics, Inc.,** with national sales headquarters at 55 W. 44th St., N. Y. City. . . . A largely expanded sales and service organization will present the **Ingersoll** Utility Unit to home builders. The Utility Unit now has its own headquarters on the ground floor of 321 Plymouth Court, Chicago, Ill. The **Borg-Warner Corp.** created a new corporate structure to take over the unit. It is known as the Ingersoll Utility Unit Division and it has been staffed as a complete business entity separate from its parent, **Ingersoll Steel Division.**

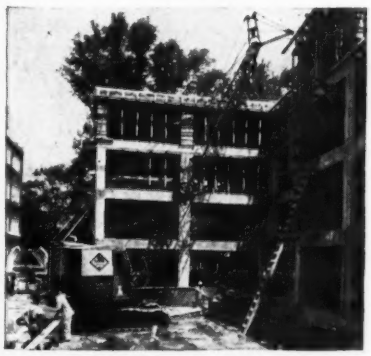
Lima PAYMASTER with clamshell bucket backfilling around foundation.

LIMA Paymaster PAYS OFF



Lima PAYMASTER with crane pulling stumps to clear site.

Lima PAYMASTER with 50' boom and 15' jib pouring basement concrete.



Lima PAYMASTER placing cement for upper floors and roof.

because it STAYS ON THE JOB from start to finish!

● *Versatility* and *Stamina* of the LIMA PAYMASTER—¾ yard convertible shovel, crane and dragline—were demonstrated on the University of Tennessee dormitory project at Knoxville. First, equipped as crane, it cleared the site of stumps. Next, with shovel boom and dipper, it dug the basement. Then the crane, with ¾ yard bucket, poured cement for basement and sills, and placed concrete for the upper structure. A shorter boom handled brick, hollow tile and other material for each floor.

The PAYMASTER paid off by saving time and labor on every operation. It saved lumber by eliminating runways for concrete buggies and chutes or spouts for placing concrete—thus avoiding methods which cause separation of aggregate, and because the PAYMASTER stayed on the job from start to finish, there was no delay in the construction.

Let Lima show you how to cut excavating and handling costs. Write for Bulletin 034D.

Lima Shovel and Crane Division

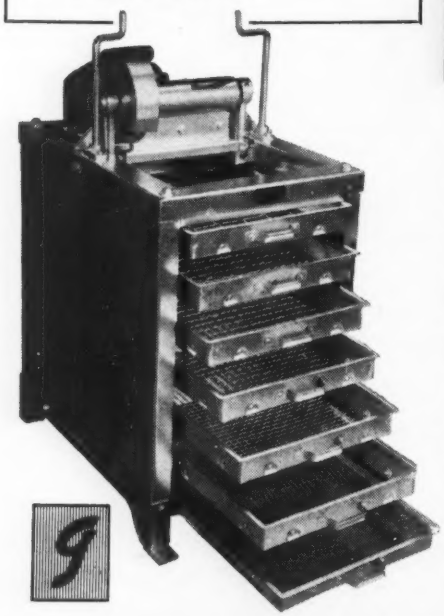
LIMA, OHIO

OTHER DIVISIONS: *Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.*

LIMA HAMILTON CORPORATION

8 GILSON FEATURES

1. Makes test quickly and accurately
2. Two to seven separations simultaneously
3. Screen trays independently removable
4. Trays balanced to same tare weight
5. Visible separation to refusal
6. Few moving parts
7. Sturdy construction
8. Size range 4" to 200-mesh



GILSON Mechanical Testing Screen

• This machine is designed for the efficient sizing of test samples of crushed stone, gravel, slag and similar materials. It accommodates samples up to one cubic foot, making from two to seven separations simultaneously, in five minutes or less.

Smaller amounts of very fine materials may be handled efficiently and the screen used for research or other special mass separation jobs down to 100-mesh or finer.

Where exacting specifications are required the Gilson Screen eliminates guesswork—avoids errors and reduces operating delays. A controlled and truly guaranteed product is now possible with the Gilson Testing Screen. For fast accurate sizing of coarse or fines from 4" to 200-mesh specify a Gilson Testing Screen.

GILSON SCREEN CO. BOX 186 MERCER, PENNA.

PRECISION-BUILT

WECO

HEAVY-DUTY BLOCKS

Extra Strength throughout to withstand sudden shock and strain

Watch-like precision is maintained throughout WECO Block design materials and manufacture. Specimen blocks have been tested to 12 tons with extra strength to take more load. Full swiveling. Shake-proof washers throughout. Proved in heavy duty oilfield service for general industry use. Write for block catalog.

- Drop Side
- Forged Steel Hook
- Snarl-proof

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Subsidiary of Chiksan Company
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Exclusive Sales Representative Outside Mid-Continent Area
CHIKSAN COMPANY
Brea, Calif. New York 7
Export Sales: CHIKSAN EXPORT COMPANY, Brea, Calif. New York 7

WECO
Manufacturers and Distributors of Oilfield, Refining, Marine and Industrial Equipment

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(Classified Advertising)

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C.M.

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available for immediate delivery, rental or purchase at very attractive price—

Two Wooldridge Terra-Cobra self-powered Scraper units, 15 yards struck, 18 yards heaped; Cummins Diesel Engines with less than 200 hours on either machine.

F.S.-4137 CONSTRUCTION METHODS
300 W. 42nd St., New York 18, N. Y.

FOR SALE

2—Late Model 4½-HM Jaeger slightly used 4½ yard Truck Mixers in A-1 Condition. Price each $4,350.00.

NORTH CAROLINA EQUIPMENT COMPANY
3101 HILLSBORO ST. RALEIGH, N. C.
Telephone 8836

WANTED
SUPERVISOR OF BUILDING MAINTENANCE

With architectural or structural engineering background. Should have experience as supervisor of building maintenance and trades. Write stating experience, when available, and salary desired. Application will be kept confidential. Chicago metropolitan area.

P-3526 CONSTRUCTION METHODS
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—for you—the advertiser—and the publisher, if you mention this publication. Advertisers value highly this evidence of the publication you read. Satisfied advertisers enable the publisher to secure more advertisers and—more advertisers mean more information on more products or better service—more value—to YOU.

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25# & Heavier Relay Rails

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Tie Plates—Bolts—Spikes
New & Used Ties
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SWITCH MATERIALS

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New & Used Switch Timbers
"One Piece or Carload Quantities"

MORRISON RAILWAY SUPPLY CORP.

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Write Empire Bldg.
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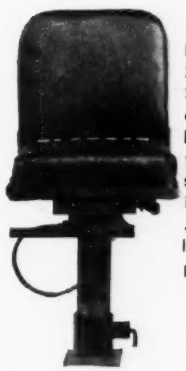
FULL VIEW . . . JOB AHEAD WITH SITTING COMFORT

Living room comfort in a chair designed for Power Shovels, Cranes, Tractors, Graders, etc.



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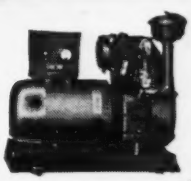

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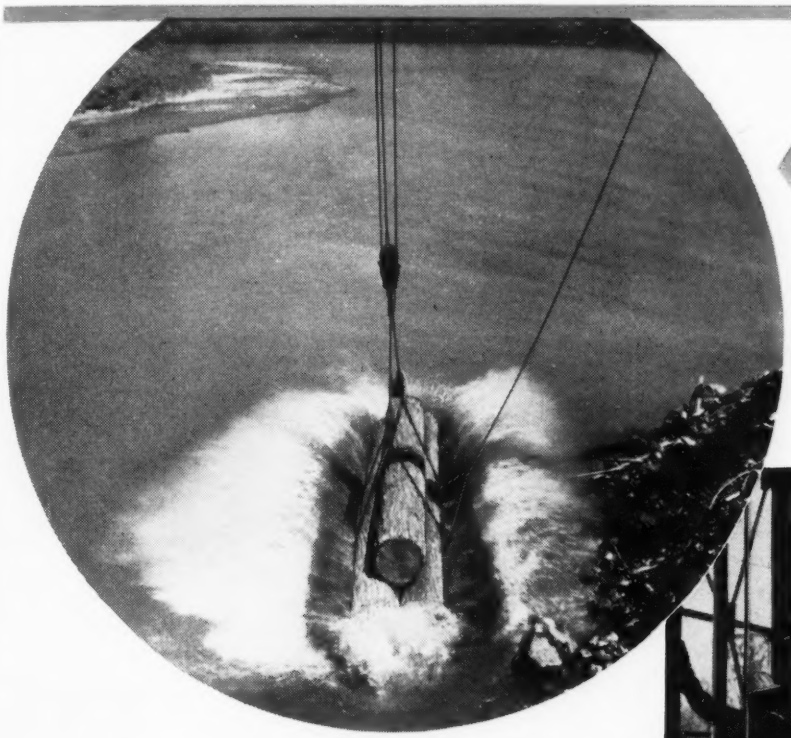
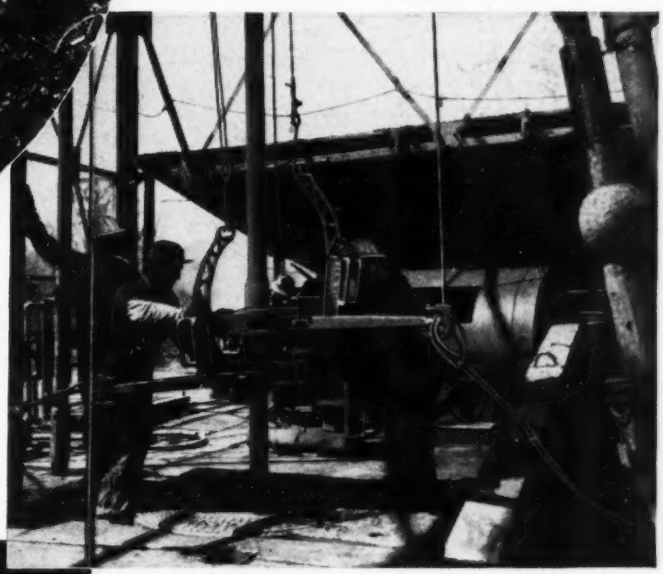
Improving Production with LAY-SET PREFORMED



Dropping logs into the river with a swing boom unloader. When logs hit water an automatic trip on the hooks frees the mainline straps. Buoyancy of logs in water slacks the mainline, and weight jerks hooks free from strap loops. With a load of 5,000 board feet (40,000 pounds), that's a lot of lifting, jerking and quick-slackening for the wire rope—but Hazard LAY-SET Preformed takes it in stride.



In oil drilling—Improved production with LAY-SET Preformed wire rope is quickly evident in the oil fields. Because LAY-SET is a "relaxed" wire rope, it takes bending stresses, whipping and straining—with ease. The result is fast, uninterrupted production—more barrels of oil per day.

Short wall cutting machine at work in a coal mine. Here, where wire rope failures would seriously affect production, operators depend upon LAY-SET Preformed wire rope. Its longer life means steadier, more profitable production.

***LAY-SET** Preformed wire rope will improve production on your lifting and pulling jobs too. Be sure to specify* LAY-SET Preformed *the next time you need wire rope.*

ACCO *In Business for Your Safety*

TRADE MARK

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WHEN A BLUE BRUTE PAVER SET THE PACE...

A Blue Brute 34E "Dual Drum" Paver on U. S. Route 422, in 1947, showing the "live" boom-and-bucket in action.

The same Paver in October, 1946, pouring concrete on Route 1, near Newark, N. J.

No paving job moves faster than the pace set by its paver. That's why S. J. Groves & Sons Co. selected Ransome Blue Brute 34E Dual Drum Pavers for jobs where fast performance was a "must".

Speed counted on the new 3-lane U.S. 422 between New Castle, Pa., and Youngstown, Ohio, delayed by abnormally heavy rains and lack of skilled manpower. Here a Ransome Blue Brute 34E Dual Drum Paver set the remarkable pace of ½ mile per day. This was the very same Blue Brute, incidentally, that performed a rush job the year before on U. S. 1 near the Newark, N. J. Airport. Here, fast-growing traffic demanded a tremendous widening project in a hurry.

That's where the 34E's many advanced features proved themselves. For example: *the fool-proof, self-cleaning, fast-charging skip . . . mechanically operated batchmeter for all-weather accuracy . . . precision water-measuring . . . and the exclusive, hydraulically operated "live" boom-and-bucket combination that spreads as it swings, cutting down costly hand shovelling.*

Geared to the output of the Blue Brute Paver, these large-scale paving operations were carried out smoothly . . . economically . . . on time! And that's why a Ransome 34E, Single or Dual Drum, on your own construction jobs will lay more yardage . . . more accurately and with less manpower ...than any other paver. For full details, see your nearby Worthington-Ransome Distributor, or write for Bulletin 208.

RB-5

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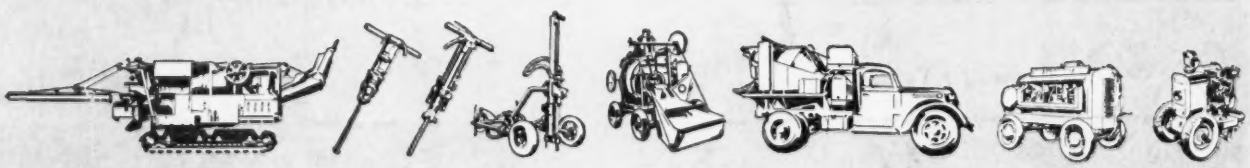

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